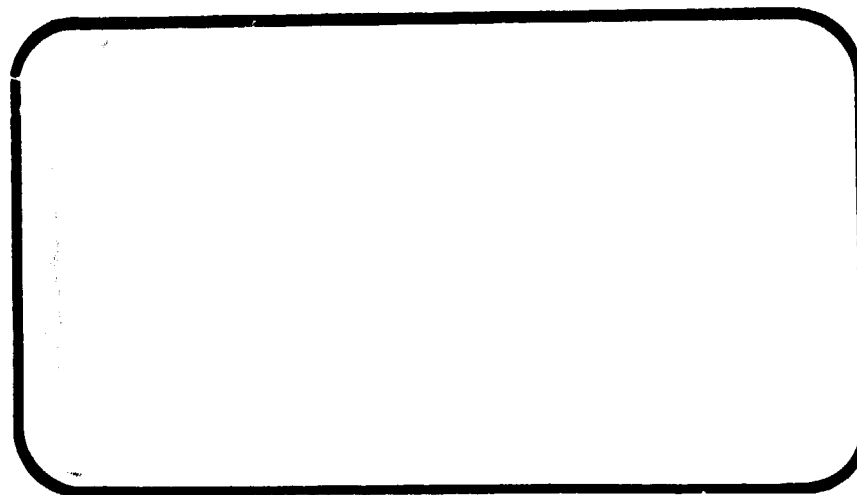




NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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0.019 SCALE SPACE SHUTTLE INTEGRATED VEHICLE  
(MODEL 14-CIS) IN THE CALSPAN 8-FOOT  
TRANSONIC WIND TUNNEL (IA36), VOLUME 1  
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SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

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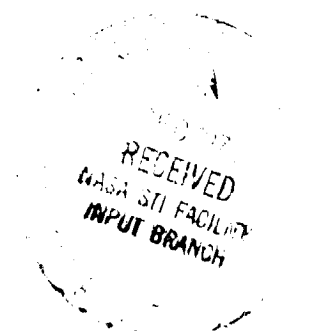
HOUSTON, TEXAS

DATA Management services

SPACE DIVISION



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WIND TUNNEL TEST OF THE 0.019 SCALE SPACE  
SHUTTLE INTEGRATED VEHICLE (MODEL 14-OTS) IN  
THE CALSPAN 8-FOOT TRANSONIC WIND TUNNEL (IA36)  
VOLUME 1 OF 2

by

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Prepared under NASA Contract Number NAS9-10247

by

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New Orleans, La. 70189

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Engineering Analysis Division  
Johnson Space Center  
National Aeronautics and Space Administration  
Houston, Texas

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NASA Series Number: IA36  
Test Date: 15 through 22 June, 1973  
Occupancy Hours: 80.5

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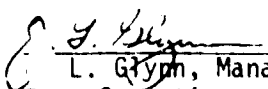
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WIND TUNNEL TEST OF THE 0.019 SCALE  
SPACE SHUTTLE INTEGRATED VEHICLE (MODEL 14-OTS)  
IN THE CALSPAN 8-FOOT TRANSONIC WIND TUNNEL  
(IA36)

R. B. Hardin, R. R. Burrows, Rockwell International

ABSTRACT

This report contains information concerning a wind tunnel test of the 0.019 scale Space Shuttle Integrated Vehicle in the CALSPAN 8-foot Transonic Wind Tunnel. The test started 15 June 1973 and ended 22 June 1973 for a total of 80.5 charge hours. The test identification number is IA36.

The purpose of this test was to determine the effect of cold jet gas plumes generated from MPS and SRM nozzles on 1) six-component force and moment data, 2) wing static pressures, 3) wing hinge moment, 4) elevon hinge moment, 5) rudder hinge moment, and 6) orbiter MPS nozzle pressure loads. The effects of rudder deflection, nozzle gimbal angle, and plume size were also obtained.



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## PLOTTED COEFFICIENTS SCHEDULE:

- CAF, CAB, CN, CLMF vs ALPHA; CN vs CLMF
- CY, CBL, CYN vs BETA; CY vs CYN
- CP vs PHI
- DELCP vs Y/DE
- DELCP vs Z/DE

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PLOTTED COEFFICIENTS SCHEDULE:  
(Concluded)

- F. DCN/DX, DCY/DX, DCLM/DX, DCYN/DX vs X/DE
- G. CN, CY, CLM, CYN, CFR, THETAF, CMR, THETAM vs ALPHA
- H. CN, CY, CLM, CYN, CRF, THETAF, CMR, THETAM vs BETA
- I. CP vs X/C

# NOMENCLATURE

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$Ab_{ACPS}$		Attitude control propulsion system base area, $ft^2$ (total for two)
$Ab_{EOHT}$		External tank total base area (cavity plus model base), $ft^2$
$Ab_{OMS}$		Base area of orbital maneuvering system (minus projected area of OMS nozzle), $ft^2$ (total for two)
$Ab_{OMSN}$		Nozzle exit area of OMS, $ft^2$ (total for two)
$Ab_{ORB}$		Total orbiter base area (minus projected exit area of MPS nozzles), $ft^2$
$Ab_{SRM}$		SRM shroud base area (minus projected nozzle exit area), (total for two), $ft^2$
$Ac_{EOHT}$		External tank cavity area, $ft^2$
$Ac_{ORB}$		Orbiter cavity area, $ft^2$
$Ac_{SRM}$		SRM cavity area, $ft^2$ (total for two)
$An_{ORB}$		Total exit area of (3) orbiter MPS nozzles, $ft^2$
$An_{SRM}$		Total exit area of (2) SRM nozzles, $ft^2$
a		Distance from $N_1$ gage to MRP (positive forward of MRP), inches
b	BREF	Wing span or reference span; m, ft
$b_w$		Orbiter exposed wing panel semi-span (distance from exposed root chord to tip chord), inches
$\bar{c}_e$		Elevon M.A.C. length, inches
c.g.		Center of gravity
$\bar{c}_r$		Rudder M.A.C. length, inches



# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$C_{ABAL}$		Balance chord force coefficient (uncorrected)
$C_{AbACPS}$		Attitude control maneuvering system base chord force coefficient
$C_{AbEOHT}$		External tank base chord force coefficient (based on $A_{bEOHT}$ )
$C_{AbEOHT}^*$		External tank base chord force coefficient (based on $A_{CEOHT}$ )
$C_{AbOMS}$		Orbital maneuvering system base chord force coefficient
$C_{AbOMSN}$		Orbital maneuvering system nozzle base chord force coefficient
$C_{AbORB}$		Orbiter base chord force coefficient (based on $A_{bORB}$ )
$C_{AbORB}^*$		Orbiter base chord force coefficient (based on $A_{CORB}$ )
$C_{AbSRM}$		SRM base chord force coefficient (based on $A_{bSRM}$ )
$C_{AbSRM}^*$		SRM base chord force coefficient (based on $A_{CSR}$ )
$C_{ACEOHT}$		External tank cavity chord force coefficient (corrected to base pressure)
$C_{ACEOHT}^*$		External tank cavity chord force coefficient (based on $A_{CEOHT}$ and EOHT cavity pressures)
$C_{ACORB}$		Orbiter cavity chord force coefficient (corrected to base pressure)
$C_{ACORB}^*$		Orbiter cavity chord force coefficient (based on $A_{CORB}$ and orbiter cavity pressures)
$C_{ACSRM}$		SRM cavity chord force coefficient (corrected to base pressure)

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$C_{AC}^*_{SRM}$		SRM cavity chord force coefficient (based on $A_{CSRM}$ and SRM cavity pressures)
$C_{ANORB}$		Orbiter nozzle chord force coefficient
$C_{ANSRM}$		SRM nozzle chord force coefficient
$C_{Af}$	CAF	Ascent vehicle forebody chord force coefficient
$C_{AT}$	CA	Ascent vehicle total chord force coefficient
$C_c$	CBL	Ascent vehicle rolling moment coefficient
$C_{BW}$	CBW	Wing bending moment coefficient about exposed root chord
$C_{FR}$	CFR	Resultant force of the normal force and side force for the nozzle, based on a reference area of 49.4 ft <sup>2</sup>
$C_{HeI}$	CHEI	Inboard elevon hinge moment coefficient
$C_{HeO}$	CHEO	Outboard elevon hinge moment coefficient
$C_{Het}$		Total elevon hinge moment coefficient, $C_{HeI} + C_{HeO}$
$C_{Hr}$	CHR	Rudder hinge moment coefficient
$C_{HW}$	CHW	Wing torsional moment coefficient
$C_{MR}$	CMR	Resultant moment of the pitching moment and yawing moment for the nozzle, based on a reference area of 49.4 ft <sup>2</sup>
$C_{mf}$	CLMF	Ascent vehicle forebody pitching moment coefficient
$C_{mt}$	CLM	Ascent vehicle total pitching moment coefficient

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$C_{mBAL}$		Balance pitching moment coefficient
$C_N$	CN	Ascent vehicle normal force coefficient
$C_{NW}$	CNW	Normal force coefficient on one exposed wing panel
$C_p( )$		Wing, base, cavity, and upper MPS nozzle pressure coefficient
$C_Y$	CY	Ascent vehicle side force coefficient
$C_n$	CYN	Ascent vehicle yawing moment coefficient
$\bar{c}_W$		Mean aerodynamic chord of exposed wing panel (based on $S_W$ ), inches
$\Delta C_p$	DELCP	Incremental pressure distribution between opposite sides of the MPS nozzles (see table II, p. 59)
$\Delta SRMPR$	DSRMPR	Incrementation SRM nozzle pressure ratio, (power on - power off)
$\Delta OPR$	DOPR	Increment in orbiter nozzle pressure ratio, (power on - power off)
$\Delta \frac{C_{af}}{\delta_r}$	DDCAFR	Incremental effect of power on axial force coefficient rudder effectiveness
$\Delta \frac{C_N}{\delta_r}$	DDCNDR	Incremental effect of power on normal force coefficient rudder effectiveness
$\Delta \frac{C_{mf}}{\delta_r}$	DDCMFR	Incremental effect of power on pitching moment coefficient rudder effectiveness; includes forebody axial force
$\Delta \frac{C_y}{\delta_r}$	DDCYDR	Incremental effect of power on side-force coefficient rudder effectiveness

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$\frac{\partial C_{\ell}}{\partial \delta_r}$	DDCBLR	Incremental effect of power on rolling moment coefficient rudder effectiveness
$\frac{\partial C_n}{\partial \delta_r}$	DDCYNR	Incremental effect of power on yawing moment coefficient rudder effectiveness
$\frac{\partial C_{A_f}}{\partial \delta_r}$	DCAFDR	Forebody axial force coefficient rudder effectiveness
$\frac{\partial C_N}{\partial \delta_r}$	DCN/DR	Normal force coefficient rudder effectiveness
$\frac{\partial C_{m_f}}{\partial \delta_r}$	DCMFDR	Pitching moment coefficient rudder effectiveness; includes forebody axial force effect
$\frac{\partial C_y}{\partial \delta_r}$	DCY/DR	Side force coefficient rudder effectiveness
$\frac{\partial C_{\ell}}{\partial \delta_r}$	DCBLDR	Rolling moment coefficient rudder effectiveness
$\frac{\partial C_n}{\partial \delta_r}$	DCYNDR	Yawing moment coefficient rudder effectiveness
$\frac{\partial C_{m/a}}{\partial (x/d_e)}$	DCLM/DX DCNMDX	Local pitching moment coefficient distribution with respect to $x/d_e$
$\frac{\partial C_N}{\partial (x/d_e)}$	DCN/DX	Local normal force coefficient distribution with respect to $x/d_e$
$\frac{\partial C_y}{\partial (x/d_e)}$	DCY/DX	Local side force coefficient distribution with respect to $x/d_e$
$\frac{\partial C_n}{\partial (x/d_e)}$	DCYN/DX DCYNDX	Local yawing moment coefficient distribution with respect to $x/d_e$

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$\frac{\partial C_N}{\partial \alpha}$	CN/A	Normal force coefficient derivative with respect to alpha
$\frac{\partial C_{mf}}{\partial \alpha}$	CLMF/A	Pitching moment coefficient derivative with respect to alpha; includes forebody axial force effect
$\frac{\partial C_Y}{\partial \beta}$	CY/B	Side force coefficient derivative with respect to beta
$\frac{\partial C_\ell}{\partial \beta}$	CBL/B	Rolling moment coefficient derivative with respect to beta
$\frac{\partial C_n}{\partial \beta}$	CYN/B	Yawing moment coefficient derivative with respect to beta
$x(a.c.)_\alpha / l_v$	XAC/L	Longitudinal location of the aerodynamic center in pitch (XAC/L) and yaw (XYAC/L) based on an overall ascent vehicle length of 2175 inches F.S.
$x(a.c.)_\beta / l_v$	XYAC/L	
$\Delta \frac{\partial C_N}{\partial \alpha}$	DCN/A	Incremental effect of power on normal force coefficient alpha derivative
$\Delta \frac{\partial C_{mf}}{\partial \alpha}$	DCMF/A	Incremental effect of power on pitching moment coefficient alpha derivative; forebody axial force effect included
$\Delta \frac{\partial C_Y}{\partial \beta}$	DCY/B	Incremental effect of power on side force coefficient beta derivative
$\Delta \frac{\partial C_\ell}{\partial \beta}$	DCBL/B	Incremental effect of power on rolling moment coefficient beta derivative

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLCT SYMBOL</u>	<u>DEFINITION</u>
$\Delta \frac{\partial C_n}{\partial \beta}$	DCYN/B	Incremental effect of power on rolling moment coefficient beta derivative
$\Delta(X_{a.c.}/\ell)$	DXAC/L	Incremental effect of power on longitudinal center of pressure
$\Delta(Y_{a.c.}/\ell)$	DYAC/L	Incremental effect of power on lateral-directional center of pressure
$\Delta(C_N)$	DCN	Incremental effect of power on normal force coefficient
$\Delta(C_{A_f})$	DCAF	Incremental effect of power on forebody axial force coefficient
$\Delta(C_{A_b})$	DCAB	Incremental effect of power on base force coefficient
$\Delta(C_{m_f})$	DCLMF	Incremental effect of power on pitching moment coefficient
$\Delta(C_Y)$	DCY	Incremental effect of power on side force coefficient
$\Delta(C_n)$	DCYN	Incremental effect of power on yawing moment coefficient
$\Delta(C_\ell)$	DCBL	Incremental effect of power on rolling moment coefficient
d		Distance from $N_2$ gage to MRP (positive forward of MRP) inches
$d_e, D_{Ex}$		Diameter of nozzle at exit plane
$D_{IN}$		Diameter of nozzle at entrance plane
$D_T$		Diameter of nozzle at throat
e		Distance from MRP to balance centerline (positive above MRP)

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
f		Distance from MRP to $Y_1$ gage (positive forward of MRP)
	GP1	Upper orbiter nozzle; degrees of pitch that the engine is gimballed from null
	GP2	Lower left orbiter nozzle; degrees of pitch that the engine is gimballed from null
	GP3	Lower right orbiter nozzle; degrees of pitch that the engine is gimballed from null
	GP4	Left SRM nozzle
	GP5	Right SRM nozzle
	GY1	Upper orbiter nozzle; degrees of yaw that the engine is gimballed from null
	GY2	Lower left orbiter nozzle; degrees of yaw that the engine is gimballed from null
	GY3	Lower right orbiter nozzle; degrees of yaw that the engine is gimballed from null
$G_p( )$		Gimbal pitch angle of nozzle from null position (denoted by subscript), degrees
$G_y( )$		Gimbal yaw angle of nozzle from null position (denoted by subscript), degrees
g		Distance from MRP to $Y_2$ gage (positive forward of MRP), inches
i		Incidence angle of orbiter reference plane with respect to EOHT reference plane, degrees
$K_e( )$		Elevon hinge moment gage calibration factor (subscript denotes inboard or outboard) in.-lb/cts

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$K_{rpe}$		Ratio of measured to theoretical exit pressure $P_{e \text{ meas}}/P_{e \text{ true}}$
$K_r$		Rudder hinge moment gage calibration factor, in.-lbs/cts
$K_{ij}$		Wing gage calibration factor, in.-lb/ct where $i$ = gage number and $j$ = order of $K$ in the second degree calibration curve fit
$\ell$		Rolling moment balance output, in.-lbs
$\ell_{REF}$	LREF	Ascent vehicle moment reference length, inches
$M_\infty$	MACH	Tunnel freestream Mach number
$m_{1,2,3}$		Wing strain gage output (uncorrected for interactions) in.-lbs; where 1 is the inboard bending gage, 2 is the outboard bending gage, and 3 is the torsion gage
$M_{1,2,3}$		Wing strain gage output which has been corrected for interactions, in.-lbs; where 1 is the inboard bending gage, 2 is the outboard bending gage, and 3 is the torsion gage
$m'_{1,2,3}$		Wing strain gage output, raw data counts, where 1 is the inboard bending gage, 2 is the outboard bending gage, and 3 is the torsion gage
$m'_e ( )$		Elevon hinge moment gage output, raw data counts where subscript denotes inboard or outboard panel
	MPSRA	Orbiter MPS nozzle rotation angle, deg.
$m'_r$		Rudder hinge moment gage output, raw data counts



# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$MRP(x,y,z)$	XMRP YMRP ZMRP	Moment reference point in X,Y,Z coordinates, inches
$N_1$		Forward normal force gage output, pounds
$N_2$		Aft normal force gage output, pounds
$N_w$		Normal force on exposed wing panel, pounds
$P_c/P_t$	OPR	Ratio of orbiter chamber pressure ( $P_c$ ) to freestream total pressure
$P( )$		Model pressure, psfa
$P_c( )$		Nozzle plenum total pressure denoted by a subscript
$P_e( )$		Nozzle exit static pressure (denoted by a subscript), psia
$P_\infty$		Tunnel static pressure, psfa
Power	POWER	Nozzle power supply: Power = 1.0 - ON Power = 0.0 - OFF
$P_t$		Tunnel total pressure, psfa
$P_c/P_\infty$		Ratio of plenum total pressure to freestream pressure
$P_e/p_t$	SRMPR	Ratio of SRM nozzle exit pressure to free- stream total pressure
$P_c/p_t, {}^{RP}P_c( )$		Ratio of plenum total pressure to $P_t$ , denoted by a subscript
$P_e/p_t, {}^{RP}P_e( )$		Ratio of nozzle exit static pressure to $P_t$ , denoted by a subscript
$q$	Q(PSF)	Tunnel freestream dynamic pressure, psf
$R_n/L$	RN/L	Tunnel Reynolds number, per foot
R		Orbiter MPS nozzle local radius.

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$r/r^*$		Ratio of the local radius to the critical throat radius for the MPS nozzles
$S_e$		Elevon area (total one side) $\text{ft}^2$
$S_N$		Reference area for nozzle, $\text{ft}^2$
$S_r$		Rudder area, $\text{ft}^2$
$S_{REF}$	SREF	Ascent vehicle coefficient reference area, $\text{ft}^2$
$S_w$		Area of one exposed wing panel (includes glove area), $\text{ft}^2$
$T_\infty$		Tunnel freestream static temperature, $^\circ\text{R}$
$T_t$		Tunnel total temperature, $^\circ\text{R}$
$W_{F_i}$		Model pressure weighting factor, either 0 or 1
$X$		Distance forward of nozzle exit plane
$x/c$	X/C	Chord-wise wing location, fraction of the chord
$x/d_e$	X/DE	Ratio of the distance forward of the nozzle exit to the internal diameter of the nozzle exit
$x/r^*$		Ratio of the distance forward of the nozzle exit to the critical throat radius of the MPS nozzles
$X_G$		Distance from orbiter MPS nozzle gimbal to exit plane
$X_{HL}$		Orbiter station of exposed wing torsional axis, inches

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$x_o$		Orbiter longitudinal station, inches
$x_T$		EOHT longitudinal station, inches
$x_W$		Distance between wing bending gage $m_1$ and $m_2$ , inches
$y_o$		Orbiter spanwise station, inches
$y_{ROOT}$		Orbiter spanwise station of exposed wing root chord, inches
$y_T$		EOHT spanwise station, inches
$y$		Spanwise distance from the exposed wing root chord to the $m_2$ gage (positive when $m_2$ gage is outboard of reference station), model scale inches
$y/d_e$	$Y/DE$	Lateral distance from the nozzle centerline as a fraction of the nozzle exit internal diameter
$z_{bACPS}$		Vertical distance from centroid of ACPS base area to MRP (positive above MRP), inches
$z_{bEOHT}$		Vertical distance from centroid of EOHT base area to MRP (positive above MRP), inches
$z_{bOMS}$		Vertical distance from centroid of OMS base area to MRP (positive above MRP), inches
$z_{bOMSN}$		Vertical distance from centroid of OMS nozzle base area to MRP (positive above MRP), inches
$z_{bORB}$		Vertical distance from centroid of ORB base area to MRP (positive above MRP), inches

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$Z_{bSRM}$		Vertical distance from centroid of SRM base area to MRP (positive above MRP), inches
$Z_{CEOHT}$		Vertical distance from centroid of EOHT cavity area to MRP (positive above MRP), inches
$Z_{CORB}$		Vertical distance from centroid of orbiter cavity area to MRP (positive above MRP), inches
$Z_{CSRM}$		Vertical distance from centroid of SRM cavity area to MRP (positive above MRP), inches
$Z_{NORB}$		Vertical distance from centroid of orbiter nozzle exit area to MRP (positive above MRP), inches
$Z_{NSRM}$		Vertical distance from centroid of SRM nozzle exit area to MRP (positive above MRP), inches
$Z_o$		Orbiter vertical station, inches
$Z_T$		EOHT vertical station, inches
$z/d_e$	Z/DE	Vertical distance from the nozzle centerline as a fraction of the nozzle exit internal diameter
$\alpha$	ALPHA	Ascent vehicle angle of attack, degrees
$\beta$	BETA	Ascent vehicle angle of sideslip, degrees
$\gamma$		Angle of some radial direction in the base planes to the nozzle centerline, degrees
$\delta_a$	AILRON	Aileron deflection defined as $(\delta_{aL} - \delta_{aR})/2$ , degrees
$\delta_e$	ELEVON	Elevon deflection defined as $(\delta_{eL} + \delta_{eR})/2$ , degrees

# NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
$\delta_r$	RUDDER	Rudder deflection, degrees
$\left( \frac{\partial m_1}{\partial m_2} \right)_{( )} \dots , \left( \frac{\partial m_3}{\partial m_1} \right)_{( )}$		First order interaction for wing bending and torsion gages. (1) denotes first order term in a 2nd degree curve fit, (2) denotes second order term in a 2nd degree curve fit
$\eta$	ETA	Spanwise wing station, fraction of the semi-span
$\theta_{FR}$	THETAF	Angle of resultant force, CFR, measured from top centerline of the nozzle, positive in a clockwise direction when looking forward, degrees
$\theta_{MR}$	THETAM	Angle of resultant moment, CMR, measured from top centerline of the nozzle, positive in a clockwise direction when looking forward, degrees
$\theta_N$		Rotation angle of MPS nozzles in ball sockets (clockwise rotation as looking forward is positive), degrees
$\phi$	PHI	Radial angle on MPS nozzles with $\phi = 0^\circ$ on top, $\phi = 90^\circ$ on the right side, $\phi = 180^\circ$ on bottom, and $\phi = 270^\circ$ on left side, degrees
$\psi$	PSI	Nozzle angle of yaw, degrees
<u>SUBSCRIPTS</u>		<u>DEFINITION</u>
a		aileron
ACPS		attitude control propulsion system
b		base
e		elevon
EOHT		external oxygen hydrogen tank

# NOMENCLATURE (Concluded)

<u>SUBSCRIPTS</u>	<u>DEFINITION</u>
I	inboard
l	local
L	left
O	outboard
OMS	orbital maneuvering system
OMSN	orbital maneuvering system nozzle
ORB, o	orbiter
r	rudder
R	right
s	static conditions
SRM	solid rocket motor
t	total conditions
T	external tank
W	wing
1	top MPS nozzle
2	left MPS nozzle
3	right MPS nozzle
4	left SRM nozzle
5	right SRM nozzle
$\infty$	free stream

## CONFIGURATION DESCRIPTION

The model test was an 0.019 scale representation of the Rockwell/NASA configuration of the integrated space shuttle vehicle. The model had the capability of cold jet simulation of the jet plumes generated from the SRM and MPS nozzles.

The 2A orbiter was rigidly attached to the EOHT at  $0^\circ$  incidence with respect to the EOHT centerline. The orbiter MPS nozzles were attached to the non-metric air supply system which runs through the sting.

The 4 configuration EOHT was mounted on a 2.5 inch sting mounted internal balance.

The 4 configuration SRM's were rigidly attached to the EOHT with the SRM centerline on waterplane  $X_T = 0.0$ " and butt plane  $Y_T = 243$ " full scale. The nozzles could be deflected  $\pm 7^\circ$  pitch and  $\pm 7^\circ$  yaw.

The orbiter right-hand wing panel had forty (40) static pressure taps and the left-hand wing is attached to the orbiter by a single flexure three-component moment balance. The elevon panels on the left-hand wing panel were attached by means of single-component moment balances.

The vertical tail rudder had the capability of being deflected  $\pm 10^\circ$ . The rudder panel was attached to the vertical tail by means of a single-component moment balance.

### Nozzle Gimbal Angles & Reference Systems for Angle Measurement

The orbiter has three MPS nozzles whose individual gimbal points each define the origin of three separate reference systems. These reference systems are shown in figure 2.a. Positive indications of gimbal pitch and gimbal yaw are shown.

Figure 2.b. is an enlarged view of one of these reference systems. All three planes shown are at right angles to one another. The dashed lines are projections of the nozzle centerline onto the pitch and yaw planes of the reference system. ( $\alpha$ ) is the angle of pitch; either up or down. ( $\psi$ ) is the angle of yaw; either right or left. Each nozzle is physically set to a gimbal angle of pitch and for yaw by an apparatus which measures ( $\phi$ ); some radial direction in the base plane, and ( $\gamma$ ); the angle from that radial to the nozzle centerline. The  $\phi$  sector is determined by ( $\alpha$ ) and ( $\psi$ ):

$\phi$	$\alpha$	$\psi$
270° to 360°	0° to +90°	0° to +90°
180° to 270°	0° to -90°	0° to +90°
90° to 180°	0° to -90°	0° to -90°
0° to 90°	0° to +90°	0° to -90°

All test programs for this model use the symbol  $G_p$  as the angle that the centerline of the nozzle is pitched (up or down) and  $G_y$  as the angle that the centerline of the nozzle is yawed (right or left). Up and left are both in the positive direction.

Since all angles are defined from the nozzle null position, the relationships are as follows:

$$(1) \quad G_p = \alpha - \alpha_{null}$$

$$(2) \quad G_y = \psi - \psi_{null}$$

Where  $\alpha_{null}$  is the angle that the nozzle centerline is pitched from the reference system axis to null position and  $\psi_{null}$  is the angle that the nozzle centerline is yawed from the reference system axis to null position (figure 2.b.).

$\alpha_{null}$  and  $\psi_{null}$  are specified for each MPS nozzle in the dimensional data for Ng and N10. It should be noted here that a side view of the of the orbiter shows that the nozzle base plane is rotated 13° from vertical. Therefore, the three independent nozzle reference systems for nozzle pitch differ from the orbiter's  $X_0, Y_0, Z_0$  reference system by a 13° rotation angle from vertical.

The following equations were used to convert nozzle gimbal angles  $\alpha$  and  $\psi$  to  $\phi$  and  $\gamma$ , the two angles that the fixture uses to duplicate the given angles:

$$(1) \quad \tan \phi = \frac{-\tan \psi}{\tan \alpha}$$

$$(2) \quad \tan \gamma = \frac{\sin \phi + \cos \phi}{\tan \alpha - \tan \psi}$$



Also, for the following fixture settings, the angle  $\theta = 90 - \gamma$ .

Top Nozzle:

<u>Aero Setting</u>	<u>Fixture Setting</u>	
	$\phi$	$\theta$
Null & Firing; $G_y, G_p = 0$	$0^\circ$	$+3^\circ$
$G_p = 11$	$0^\circ$	$+14^\circ$
$G_p = -11$	$180^\circ$	$8^\circ$
$G_y = 9$	$288^\circ$	$9.5^\circ$
$G_y = -9$	$71.7^\circ$	$9.5^\circ$
$G_p = 11, G_y = -9$	$32.5^\circ$	$16.5^\circ$

Bottom Left Nozzle

<u>Aero Setting</u>	<u>Fixture Setting</u>	
	$\phi$	$\theta$
Firing; $G_y = -3.5$	$180^\circ$	$3^\circ$
$G_p = 11$	$336.5^\circ$	$8.7^\circ$
$G_p = -11$	$193.6^\circ$	$14.4^\circ$
$G_y = 9$	$256.7$	$12.8^\circ$
$G_y = -9$	$118.3^\circ$	$6.2^\circ$
$G_p = 11, G_y = -9$	$34.42$	$9.7^\circ$
$G_p, G_y = 0$	$229.4^\circ$	$4.6^\circ$

Bottom Right Nozzle:

<u>Aero Setting</u>		<u>Fixture Setting</u>	
		$\phi$	$\theta$
Firing;	$G_y = 3.5$	$180^\circ$	$3^\circ$
	$G_p = 11$	$23.5^\circ$	$8.7^\circ$
	$G_p = -11$	$166.2^\circ$	$14.4^\circ$
	$G_y = 9$	$241.8^\circ$	$6.2^\circ$
	$G_y = -9$	$103.3^\circ$	$12.8^\circ$
	$G_p = 11, G_p = -9$	$57.7^\circ$	$14.7^\circ$
	$G_y, G_p = 0$	$130.6^\circ$	$4.6^\circ$

Model Nomenclature

The following nomenclature will be used to designate model components:

<u>Component</u>	<u>Definition</u>
$B_{10}$	Body
$C_5$	Canopy
$D_7$	Manipulator Housing
$W_{87}$	Wing
$E_{18}$	Elevon
$V_5$	Vertical Tail
$R_5$	Rudder
$M_3$	OMS Pod
$N_8$	OMS NOZZLES
$N_9$	ORBITER NOZZLES

<u>Component</u>	<u>Definition</u>
N <sub>10</sub>	ORBITER PRESSURE NOZZLES
F <sub>4</sub>	Body Flap
X <sub>8</sub>	Transition Strip
S <sub>10</sub>	SRM
N <sub>17</sub>	SRM Nozzle
T <sub>10</sub>	EOHT

The following table shows OTS configurations and their corresponding descriptions:

<u>Configuration</u>	<u>Description</u>
O <sub>1</sub> T <sub>1</sub> S <sub>1</sub>	Baseline (2A): B <sub>10</sub> , C <sub>5</sub> , D <sub>7</sub> , F <sub>4</sub> , M <sub>3</sub> , N <sub>8</sub> , N <sub>9</sub> , N <sub>17</sub> , V <sub>5</sub> , R <sub>5</sub> , W <sub>87</sub> , E <sub>18</sub> , X <sub>8</sub> , S <sub>10</sub> , T <sub>10</sub>
O <sub>2</sub> T <sub>1</sub> S <sub>1</sub>	Baseline (2A) with static taps on three MPS nozzles: B <sub>10</sub> , C <sub>5</sub> , D <sub>7</sub> , F <sub>4</sub> , M <sub>3</sub> , N <sub>8</sub> , N <sub>10</sub> , N <sub>17</sub> , V <sub>5</sub> , R <sub>5</sub> , W <sub>87</sub> , E <sub>18</sub> , X <sub>8</sub> , S <sub>10</sub> , T <sub>10</sub>

## TEST FACILITY DESCRIPTION

The 8-Foot Transonic Wind Tunnel was placed in operation in December of 1956 as the result of modernizing the 12-Foot Variable Density Wind Tunnel to extend its operation through the transonic range. The tunnel has a perforated throat and an auxiliary pumping system for plenum pumping. The continuous circuit tunnel is capable of operating from 1/6 to 2-1/2 atmospheres total pressure, thereby providing a wide range of test Reynolds numbers as well as Mach numbers. The range of operating pressures is necessarily limited by the total power available at the higher Mach numbers. Pumping the tunnel to these conditions is done by four centrifugal compressors for above one atmosphere testing and by seven compressors for below one atmosphere. Evacuation of the tunnel to 800 psf total pressure can be accomplished by use of the auxiliary compressor from atmospheric pressure. This procedure takes approximately 8 minutes. Consequently, at least an initial expenditure of time is necessary to bring the tunnel to the desired operating conditions. During model changes, two gate valves isolate the test section from the tunnel proper, making it necessary to bring only the test sphere to atmospheric conditions. By careful planning of the test program, it is then possible to reduce pumping time to a minimum.

The test section of the tunnel is a removable cart. In many instances this feature permits the installation of a model prior to testing, resulting in a saving of tunnel time. Three carts are in active use: a sting cart for the testing of sting-mounted, full-span models, a reflection plane cart for use with semi-span reflection plane models, and the fairing cart for full-span models mounted from a plate.

Low speed airflow calibrations have been performed for free-stream velocities from 5 to 90 feet per second. Velocities in this range are steady and can be set accurately using a fixed main drive blade angle and varying the rpm. Low speed tests may be run within the operating tunnel densities of 1/6 of an atmosphere to 2.5 atmospheres.

More explicit details of the tunnel and its operational characteristics can be found in the 8-Foot Transonic Wind Tunnel Report WTO-300 at Cornell Aeronautical Laboratory.

## TESTING AND PROCEDURE

### PRESSURE INSTRUMENTATION

The right hand orbiter wing panel was instrumented with forty (40) static pressure taps. A total of sixteen (16) base and cavity taps were installed for use in correcting chord force measurements.

The orbiter MPS nozzles each had twelve (12) external static taps at various radial and longitudinal locations.

### JET PLUME SIMULATION

The CALSPAN high pressure air supply was utilized for cold jet plume simulation of the jet plumes emanating from the orbiter MPS and SRM nozzles. The orbiter MPS and SRM nozzles had independent controls for separate throttling of each system of nozzles. Plume shapes for various Mach numbers were produced by setting specific values of  $P_c/P_t$  for the orbiter nozzles and  $P_e/P_t$  for the SRM nozzles. An error in the calibration of the air supply system resulted in inaccurate settings of the SRM nominal pressure ratios during the test. Listed below are theoretical and actual values of the pressure ratios.

NOZZLE	$M_\infty$	$P_c/P_\infty$ THEORETICAL (NOMINAL)	$P_c/P_\infty$ ACTUAL	$P_e/P_t$ THEORETICAL (NOMINAL)	$P_e/P_t$ ACTUAL	$P_c/P_t$ THEORETICAL (NOMINAL)	$P_c/P_t$ ACTUAL
Orbiter	.9	47.87	47.87	.3370	.3370	28.31	28.31
Orbiter	1.2	93.77	93.77	.4310	.4310	36.20	36.20
SRM	.9	155	167	1.878	2.02	91.97	98.9
SRM	1.2	266	308	2.105	2.33	102.703	119.0

### FORCE INSTRUMENTATION

The EOHT was mounted on the CALSPAN 2.5 inch Task MK III six-component internal balance. The model angle of attack was indicated by an NASA/AMES dangleometer and angle of sideslip was indicated by the sector read out plus sting/balance deflections. The sting was mounted on the CALSPAN double roll mechanism.

## TESTING AND PROCEDURE (Concluded)

### HINGE MOMENT INSTRUMENTATION

The left hand wing panel was mounted on a single-flexure, three-component moment balance. The two elevons of the left hand wing panel and the rudder were each instrumented with single-component moment balances.

## REMARKS

Data were obtained at angles of attack from  $-8^\circ$  to  $+6^\circ$  at  $\beta = 0^\circ$ , and angles of sideslip from  $-6^\circ$  to  $+6^\circ$  at  $\alpha = 0^\circ$  for run number 15 through 116. The high pressure supply hoses were removed from the sting for runs 117 through 120 so that angle of attack could be obtained from  $-8^\circ$  to  $+8^\circ$  at  $\beta = 0^\circ$  and angle of sideslip from  $-8^\circ$  to  $+8^\circ$  at  $\alpha = 0^\circ$ .

The MPS nozzle pressure loads were obtained during runs 19 through 78. Wing and top MPS pressure ( $\theta_N = 0^\circ$ ) data were obtained during runs 81 through 120. For runs 81 through 120, wing taps 106, 107, 108, 109, 214, 215, 309, 310, 412 were not measured so that top MPS nozzle taps 1, 3, 4, 5, 6, 7, 9, 10, 11 and 12 could be measured. The high pressure air supply hoses were removed from the test section during runs 117 through 120 to determine if the hoses affected the force and pressure data.

# DATA REDUCTION

The balance data were reduced to coefficient form and corrected for all appropriate tunnel corrections, sting/balance deflections, and tares.

The reference area,  $S_{REF}$ , for all ascent vehicle coefficients is the theoretical wing total planform area. The reference length,  $l_{REF}$ , for the pitching, rolling, and yawing moment coefficients is the fuselage body length. Chord force and pitching moment balance coefficients were adjusted for the effect of cavity pressures according to the following equations:

Ascent vehicle total chord force coefficient ( $C_A$ ):

$$C_{AT} = C_{ABAL} + C_{ACORB} + C_{ACEOHT} + C_{ACSRM} + C_{ANORB} + C_{ANSRM}$$

where:

$$C_{ACORB} = -C_{ACORB}^* + C_{AbORB}^*$$

$$C_{ACEOHT} = -C_{ACEOHT}^* + C_{AbEOHT}^*$$

$$C_{ACSRM} = -C_{ACSRM}^* + C_{AbSRM}^*$$

$$C_{ACORB}^* = - \frac{\sum_{i=101}^{102} C_{Pi}}{\sum_{i=101}^{102} W_{Fi}} \frac{A_{CORB}}{S_{REF}}$$

$$C_{AbORB}^* = - \frac{\sum_{i=201}^{204} C_{Pi}}{\sum_{i=201}^{204} W_{Fi}} \frac{A_{CORB}}{S_{REF}}$$

$$C_{ANORB} = - \frac{\sum_{i=201}^{204} C_{Pi}}{\sum_{i=201}^{204} W_{Fi}} \frac{A_{NORB}}{S_{REF}}$$



$$C_{AC_{EOHT}}^* = - \frac{\sum_{i=303}^{304} C_{P_i}}{\sum_{i=303}^{304} W_{F_i}} \frac{A_{C_{EOHT}}}{S_{REF}}$$

$$C_{A_{EOHT}}^* = - \frac{\sum_{i=301}^{302} C_{P_i}}{\sum_{i=301}^{302} W_{F_i}} \frac{A_{C_{EOHT}}}{S_{REF}}$$

$$C_{AC_{SRM}}^* = - \frac{\sum_{i=103}^{104} C_{P_i}}{\sum_{i=103}^{104} W_{F_i}} \frac{A_{C_{SRM}}}{S_{REF}}$$

$$C_{A_{SRM}}^* = \frac{\sum_{i=401}^{404} C_{P_i}}{\sum_{i=401}^{404} W_{F_i}} \frac{A_{C_{SRM}}}{S_{REF}}$$

$$C_{AN_{SRM}} = \frac{\sum_{i=401}^{404} C_{P_i}}{\sum_{i=401}^{404} W_{F_i}} \frac{A_{N_{SRM}}}{S_{REF}}$$

Ascent vehicle total pitching moment coefficient ( $C_{m_t}$ ):

$$\begin{aligned}
 C_{m_t} = & C_{m_{BAL}} - C_{ACORB}^* \left[ \frac{z_{CORB}}{l_{REF}} \right] + C_{Ab_{ORB}}^* \left[ \frac{z_{CORB}}{l_{REF}} \right] \\
 & + C_{AN_{ORB}} \left[ \frac{z_{NORB}}{l_{REF}} \right] - C_{AC_{EOHT}}^* \left[ \frac{z_{CEOHT}}{l_{REF}} \right] + C_{Ab_{EOHT}}^* \left[ \frac{z_{CEOHT}}{l_{REF}} \right] \\
 & - C_{AC_{SRM}}^* \left[ \frac{z_{CSRM}}{l_{REF}} \right] + C_{Ab_{SRM}}^* \left[ \frac{z_{CSRM}}{l_{REF}} \right] + C_{AN_{SRM}} \left[ \frac{z_{NSRM}}{l_{REF}} \right]
 \end{aligned}$$

$$\begin{aligned}
 C_{m_T} = & C_{m_{BAL}} + C_{ACORB} \left[ \frac{z_{CORB}}{l_{REF}} \right] + C_{AN_{ORB}} \left[ \frac{z_{NORB}}{l_{REF}} \right] + C_{AC_{EOHT}} \left[ \frac{z_{CEOHT}}{l_{REF}} \right] \\
 & + C_{AC_{SRM}} \left[ \frac{z_{CSRM}}{l_{REF}} \right] + C_{AN_{SRM}} \left[ \frac{z_{NSRM}}{l_{REF}} \right]
 \end{aligned}$$

Forebody chord force coefficient ( $C_{A_f}$ ):

$$C_{A_f} = C_{A_T} - C_{A_{bORB}} - C_{A_{bEOHT}} - C_{A_{bSRM}} \\ - C_{A_{bOMS}} - C_{A_{bOMSN}} - C_{A_{bACPS}}$$

where:

$$C_{A_{bORB}} = - \frac{\sum_{i=201}^{204} C_{p_i}}{\sum_{i=201}^{204} W F_i} \frac{A_{bORB}}{S_{REF}}$$

$$C_{A_{bEOHT}} = - \frac{\sum_{i=301}^{302} C_{p_i}}{\sum_{i=301}^{302} W F_i} \frac{A_{bEOHT}}{S_{REF}}$$

$$C_{A_{bSRM}} = - \frac{\sum_{i=401}^{404} C_{p_i}}{\sum_{i=401}^{404} W F_i} \frac{A_{bSRM}}{S_{REF}}$$

$$C_{A_{bOMSN}} = (C_{p305}) \frac{A_{bOMSN}}{S_{REF}}$$

$$C_{A_{bOMS}} = -(C_{p105}) \frac{A_{bOMS}}{S_{REF}}$$

$$C_{A_{bACPS}} = -(C_{p405}) \frac{A_{bACPS}}{S_{REF}}$$

Ascent vehicle forebody pitching moment ( $C_{M_f}$ ):

$$C_{M_f} = C_{M_t} - C_{A_{bORB}} \left[ \frac{Z_{bORB}}{l_{REF}} \right] - C_{A_{bEOHT}} \left[ \frac{Z_{bEOHT}}{l_{REF}} \right] \\ - C_{A_{bSRM}} \left[ \frac{Z_{bSRM}}{l_{REF}} \right] - C_{A_{bOMS}} \left[ \frac{Z_{bOMS}}{l_{REF}} \right] \\ - C_{A_{bOMSN}} \left[ \frac{Z_{bOMSN}}{l_{REF}} \right] - C_{A_{bACPS}} \left[ \frac{Z_{bACPS}}{l_{REF}} \right]$$

Wing, base, cavity, and upper MPS nozzle pressure coefficient ( $C_{p_i}$ ):

$$C_{p_i} = \left( \frac{P_i - P_o}{q} \right)$$

Component hinge moment data:

The left hand wing panel was instrumented with a single-flexure three component moment balance. This balance was temperature compensated and gave accurate measurements at all tunnel temperatures.

The two elevons of the left hand wing panel and the rudder were each instrumented with single component moment balances. These balances were not temperature compensated and experienced large zero shifts during the test. During any specific pitch or yaw run, the zero shifts were negligible. However, during a series of pitch and yaw runs, the zero shifts happened at a point that cannot be determined. The sensitivity did not change. The tabulated data for these components ( $CH_{eI}$ ,  $CH_{eO}$ ,  $CH_r$ ) are presented and should be used for defining magnitude of the moment load.

Elevon hinge moment ( $CH_e$ ):

$$CH_{eI} = \frac{m_{eI}^i K_{eI}}{q S_e \bar{c}_e} \text{ (Inboard)}$$

$$C_{H_{eO}} = \frac{m'_{eO} K_{eO}}{q S_e \bar{c}_e} \text{ (outboard)}$$

$$C_{H_{eT}} = C_{H_{eI}} + C_{H_{eO}}$$

where:

$m'$  = raw cts

$K$  = calibration factor (in.-lb/cts)

Rudder hinge moment ( $C_{H_r}$ ):

$$C_{H_r} = \frac{m'_r K_r}{q S_r \bar{c}_r}$$

Wing bending and torsion:

Convert raw data counts to in.-lbs: (basic slopes)

where:

$m'$  = raw data cts

$K_{ij}$  = calibration factor (in.-lb/ct) and  $i$  = gage number  
 $j$  = order of term of second degree curve fit

$$m_1 = m'_1 K_{11} + (m'_1)^2 K_{12} \text{ (inboard gage)}$$

$$m_2 = m'_2 K_{21} + (m'_2)^2 K_{22} \text{ (outboard gage)}$$

$$m_3 = m'_3 K_{31} + (m'_3)^2 K_{32} \text{ (torsion gage)}$$

Taking interactions into account:

$$M_1 = m_1 - \left[ \left( \frac{\delta m_1}{\delta m_2} \right)_1 m_2 + \left( \frac{\delta m_1}{\delta m_2} \right)_2 (m_2)^2 \right] - \left[ \left( \frac{\delta m_1}{\delta m_3} \right)_1 m_3 + \left( \frac{\delta m_1}{\delta m_3} \right)_2 (m_3)^2 \right]$$

$$M_2 = m_2 - \left[ \left( \frac{\delta m_2}{\delta m_1} \right)_1 m_1 + \left( \frac{\delta m_2}{\delta m_1} \right)_2 (m_1)^2 \right] - \left[ \left( \frac{\delta m_2}{\delta m_3} \right)_1 m_3 + \left( \frac{\delta m_2}{\delta m_3} \right)_2 (m_3)^2 \right]$$

$$M_3 = m_3 - \left[ \left( \frac{\delta m_3}{\delta m_1} \right)_1 m_1 + \left( \frac{\delta m_3}{\delta m_1} \right)_2 (m_1)^2 \right] - \left[ \left( \frac{\delta m_3}{\delta m_2} \right)_1 m_2 + \left( \frac{\delta m_3}{\delta m_2} \right)_2 (m_2)^2 \right]$$

Determine loads and coefficients:

$$N_W = \left( \frac{M_1 - M_2}{X_W} \right)$$

$$C_{N_W} = \frac{N_W}{q S_W}$$

$$C_{B_W} = \frac{(M_2 + Y_W N_W)}{q S_W b_W}$$

$$C_{H_W} = \frac{M_3}{q S_W C_W}$$

Jet plume parameters ( $RP_c( )$ ,  $RP_e( )$ ):

$$RP_c( ) = 144 \frac{P_c( )}{P_T}$$

$$RP_e( ) = 144 \frac{P_e( )}{P_T} \left[ \frac{1}{K_{r_{pe}}} \right]$$

#### Reference Dimensions and Constants

	<u>Full Scale</u>	<u>Model Scale</u>
$Ab_{ACPS}$	28.42 ft <sup>2</sup>	0.01026 ft <sup>2</sup>
$Ab_{EOHT}$	572.56 ft <sup>2</sup>	0.2067 ft <sup>2</sup>
$Ab_{OMS}$	16.973 ft <sup>2</sup>	0.00613 ft <sup>2</sup>
$Ab_{OMSN}$	25.631 ft <sup>2</sup>	0.00925 ft <sup>2</sup>
$Ab_{ORB}$	226.75 ft <sup>2</sup>	0.08186 ft <sup>2</sup>
$Ab_{SRM}$	183.01 ft <sup>2</sup>	0.0661 ft <sup>2</sup>
$Ac_{EOHT}$	366.5 ft <sup>2</sup>	0.132 ft <sup>2</sup>
$Ac_{ORB}$	302.40 ft <sup>2</sup>	0.1092 ft <sup>2</sup>
$Ac_{SRM}$	181.378 ft <sup>2</sup>	0.0654 ft <sup>2</sup>
$An_{ORB}$	141.44 ft <sup>2</sup>	0.0511 ft <sup>2</sup>
$An_{SRM}$	219.02 ft <sup>2</sup>	0.0791 ft <sup>2</sup>

	<u>Full Scale</u>	<u>Model Scale</u>
$b_w$	363.341	6.903
$\bar{c}_e$	90.7 in	1.723 in.
$\bar{c}_r$	74.4 in.	1.414 in.
$\bar{c}_w$	513.474 in.	9.756 in
$d$	—	-11.283 in.
$e$	—	0.0 in.
$f$	—	-3.533 in.
$g$	—	-10.533 in.
$K_{eI}$	(Pos) = 26.20 $\frac{\text{in. -lb-v}}{\text{mv}}$	(Neg) = 26.39 $\frac{\text{in. -lb-v}}{\text{mv}}$
$K_{eO}$	(Pos) = 27.03 $\frac{\text{in. -lb-v}}{\text{mv}}$	(Neg) = 27.42 $\frac{\text{in. -lb-v}}{\text{mv}}$
$K_{rpe}$	(ORB) = 1.060	(SRM) = TBD
$K_r$	(Pos) = 20.80 $\frac{\text{in. -lb-v}}{\text{mv}}$	(Neg) = 20.885 $\frac{\text{in. -lb-v}}{\text{mv}}$
$K_{11}$	(Pos) = 463.1672 $\frac{\text{inlbv}}{\text{mv}}$	(Neg) = 476.3954 $\frac{\text{inlbv}}{\text{mv}}$
$K_{12}$	(Pos) = 0.0	(Neg) = 0.0
$K_{21}$	(Pos) = 436.8877 $\frac{\text{inlbv}}{\text{mv}}$	(Neg) = 437.4474 $\frac{\text{inlbv}}{\text{mv}}$
$K_{22}$	(Pos) = 0.0	(Neg) = 0.0
$K_{31}$	(Pos) = 539.9926 $\frac{\text{inlbv}}{\text{mv}}$	(Neg) = 538.9718 $\frac{\text{inlbv}}{\text{mv}}$
$K$	(Pos) = 0.0	(Neg) = 0.0
$z_{REF}$	1328.0 in	25.232 in.



	<u>Full Scale</u>	<u>Model Scale</u>
$S_e$	210.0 ft <sup>2</sup> per wing panel	0.0758 ft <sup>2</sup>
$S_r$	106.38 ft <sup>2</sup>	0.0384 ft <sup>2</sup>
$S_W$	1006.5 ft <sup>2</sup>	0.363 ft <sup>2</sup>
$S_{REF}$	2690.0 ft <sup>2</sup>	0.971 ft <sup>2</sup>
$X_W$	—	0.5638 in.
$X_{HL}$	1250.79 in.	23.765 in.
$y_W$	—	0.1423 in.
$Y_{ROOT}$	105.0 in.	1.995 in.
$Z_{bACPS}$	402.987 in.	7.656 in.
$Z_{bEOHT}$	0.0	0.0
$Z_{bOMS}$	415.505 in.	7.895 in.
$Z_{bOMSN}$	437.94 in.	8.321 in.
$Z_{bORB}$	310.0 in.	5.89 in.
$Z_{bSRM}$	0.0	0.0
$Z_{cEOHT}$	0.0	0.0
$Z_{cORB}$	349.66 in.	6.64 in.
$Z_{cSRM}$	0.0	0.0

	<u>Full Scale</u>	<u>Model Scale</u>
$Z_{NORB}$	335.0 in.	6.36 in
$Z_{NSRM}$	0.0	0.0
$\left(\frac{\partial M_1}{\partial M_2}\right)_1$	(Pos) = 0.0	(Neg) = 0.0
	<u>Positive</u>	<u>Negative</u>
$\left(\frac{\partial M_1}{\partial M_2}\right)_2$	0.0	0.0
$\left(\frac{\partial M_1}{\partial M_3}\right)_1$	-0.010562 $\frac{\text{inlbv}}{\text{mv}}$	-0.004132 $\frac{\text{inlbv}}{\text{mv}}$
$\left(\frac{\partial M_1}{\partial M_3}\right)_2$	0.0	0.0
$\left(\frac{\partial M_2}{\partial M_1}\right)_1$	0.0	0.0
$\left(\frac{\partial M_2}{\partial M_1}\right)_2$	0.0	0.0
$\left(\frac{\partial M_2}{\partial M_3}\right)_1$	0.014458 $\frac{\text{inlbv}}{\text{mv}}$	0.018206 $\frac{\text{inlbv}}{\text{mv}}$
$\left(\frac{\partial M_2}{\partial M_3}\right)_2$	0.0	0.0

	<u>Positive</u>	<u>Negative</u>
$\left(\frac{\partial M_3}{\partial M_1}\right)_1$	0.022277 $\frac{\text{inlbv}}{\text{mv}}$	0.029935 $\frac{\text{inlbv}}{\text{mv}}$
$\left(\frac{\partial M_3}{\partial M_1}\right)_2$	0.0	0.0
$\left(\frac{\partial M_3}{\partial M_2}\right)_1$	-0.031554 $\frac{\text{inlbv}}{\text{mv}}$	-0.034948 $\frac{\text{inlbv}}{\text{mv}}$
$\left(\frac{\partial M_3}{\partial M_2}\right)_2$	0.0	0.0

The orbiter MPS nozzle pressure data were integrated using Chrysler Corporation's SADSAC program to obtain the load distributions along the nozzle axis and the total nozzle loads. Integration of the pressure data (first integration) was performed according to the following equations (see Figure 8):

$$\frac{dC_N}{d(x/d_e)} = - \frac{d_e}{S_N} \int_0^{360} C_p d (R \sin \phi)$$

$$\frac{dC_m}{d(x/d_e)} = - \frac{d_e}{S_N} \int_0^{360} C_p \left( \frac{x}{d_e} - \frac{x_G}{d_e} \right) d (R \sin \phi)$$

$$\frac{dC_y}{d(x/d_e)} = \frac{d_e}{S_N} \int_0^{360} C_p d (R \cos \phi)$$

$$\frac{dC_H}{d(x/d_e)} = \frac{d_e}{S_N} \int_0^{360} C_p \left( \frac{x}{d_e} - \frac{x_G}{d_e} \right) d (R \cos \phi)$$

where:

	<u>Full Scale</u>	<u>Model Scale</u>
$S_N$	49.4 ft <sup>2</sup>	.01783 ft <sup>2</sup>
$d_e$	90.73 in.	1.7238 in.
$x_G$	158 in.	3.002 in.

These integrations were performed on the curve fits of  $C_p$  vs. PHI displayed on plot pages 73-144. The resultant local loads coefficients are plotted against  $x/d_e$  on plot pages 289-384.

The integrations for total nozzle  $C_N$ ,  $C_m$ ,  $C_y$ , and  $C_n$  (second integration) were performed according to the following equations:

$$C_N = \int_0^{1.0} \frac{dC_N}{d(x/d_e)} d(x/d_e)$$

$$C_m = \int_0^{1.0} \frac{dC_m}{d(x/d_e)} d(x/d_e)$$

$$C_y = \int_0^{1.0} \frac{dC_y}{d(x/d_e)} d(x/d_e)$$

$$C_n = \int_0^{1.0} \frac{dC_n}{d(x/d_e)} d(x/d_e)$$

The load distributions were extended to the limits of integration by assuming zero values for the local load coefficients at both limits. These added end points were then included in the curve fit used for the second integration. The load distribution plots do not include the integration limits and therefore the plot fairings will not be the same as the curve fits used for integration.

TABLE I

[illegible]

TABLE II  
DATASET COLLATION SUMMARY

TOP NOZZLE

$M = 0.9$

		DISTANCE FORWARD OF NOZZLE EXIT											
		$x/d = .058$		$x/d = .232$		$x/d = .406$		$x/d = .580$		$x/d = .753$		$x/d = .928$	
$\phi$ DEGREE	0	0	1	30	12	60	11	90	10	120	9	150	8
		28	26	36	35	44	47	54	52	63	66	73	71
		29	27	37	38	45	46	55	53	64	65	74	72
	30	30	1	60	12	90	11	120	10	150	9	0	2
		36	35	44	47	54	52	63	66	73	71	28	26
		37	38	45	46	55	53	64	65	74	72	29	27
	60	60	1	90	12	120	11	150	10	0	3	30	2
		44	47	54	52	63	66	73	71	28	26	36	35
		45	46	55	53	64	65	74	72	29	27	37	38
	90	90	1	120	12	150	11	0	4	30	3	60	2
		54	52	63	66	73	71	28	26	36	35	44	47
		55	53	64	65	74	72	29	27	37	38	45	46
	120	120	1	150	12	0	5	30	4	60	3	90	2
		63	66	73	71	28	26	36	35	44	46	54	52
		64	65	74	72	29	27	37	38	45	47	55	53
	150	150	1	0	6	30	5	60	4	90	3	120	2
		73	71	28	26	36	35	44	47	54	52	63	66
		74	72	29	27	37	38	45	46	55	53	64	65
	180	0	7	30	6	60	5	90	4	120	3	150	2
		28	26	36	35	44	47	54	52	63	66	73	71
		29	27	37	38	45	46	55	53	64	65	74	72
	210	30	7	60	6	90	5	120	4	150	3	0	8
		36	35	44	47	54	52	63	66	73	71	28	26
		37	38	45	46	55	53	64	65	74	72	29	27
	240	60	7	90	6	120	5	150	4	0	9	30	8
		44	47	54	52	63	66	73	71	28	26	36	35
		45	46	55	53	64	65	74	72	29	27	37	38
	270	90	7	120	6	150	5	0	10	30	9	60	8
		54	52	63	66	73	71	28	26	36	35	44	47
		55	53	64	65	74	72	29	27	37	38	45	46
	300	120	7	150	6	0	11	30	10	60	9	90	8
		63	66	73	71	28	26	36	35	44	47	54	52
		64	65	74	72	29	27	37	38	45	46	55	53
	330	150	7	0	12	30	11	60	10	90	9	120	8
		73	71	28	26	36	35	44	47	54	52	63	66
		74	72	29	27	37	38	45	46	55	53	64	65

MPSRA*	Tap No.
Run No. for RUFA03	Run No. for RUFA01
Run No. for RUFA04	Run No. for RUFA02

\* MPS NOZZLE  
ROTATION ANGLE

REPRODUCIBILITY OF THE  
ORIGINAL PAGE IS POOR

TABLE II (Continued)

BOTTOM LEFT NOZZLE

M: 0.9

		DISTANCE FORWARD OF NOZZLE EXIT											
		x/d = .058		x/d = .232		x/d = .406		x/d = .580		x/d = .753		x/d = .928	
Angle of Fixed Nozzle ~ Degrees	0	0	13	30	24	60	23	90	22	120	21	150	14
		28	26	36	35	44	47	54	52	63	66	73	71
		29	27	37	38	45	46	55	53	64	65	74	72
	30	30	13	60	24	90	23	120	22	150	21	0	14
		36	35	44	47	54	52	63	66	73	71	28	26
		37	38	45	46	55	53	64	65	74	72	29	27
	60	60	13	90	24	120	23	150	22	0	15	30	14
		44	47	54	52	63	66	73	71	28	26	36	35
		45	46	55	53	64	65	74	72	29	27	37	38
	90	90	13	120	24	150	23	0	16	30	15	60	14
		54	52	63	66	73	71	28	26	36	35	44	47
		55	53	64	65	74	72	29	27	37	38	45	46
	120	120	13	150	24	0	17	30	16	60	15	90	14
		63	66	73	71	28	26	36	35	44	46	54	52
		64	65	74	72	29	27	37	38	45	47	55	53
	150	150	13	0	18	30	17	60	16	90	15	120	14
		73	71	28	26	36	35	44	47	54	52	63	66
		74	72	29	27	37	38	45	46	55	53	64	65
	180	0	19	30	18	60	17	90	16	120	15	150	14
		28	26	36	35	44	47	54	52	63	66	73	71
		29	27	37	38	45	46	55	53	64	65	74	72
	210	30	19	60	18	90	17	120	16	150	15	0	20
		36	35	44	47	54	52	63	66	73	71	28	26
		37	38	45	46	55	53	64	65	74	72	29	27
	240	60	19	90	18	120	17	150	16	0	21	30	20
		44	47	54	52	63	66	73	71	28	26	36	35
		45	46	55	53	64	65	76	72	29	27	37	38
	270	90	19	120	18	150	17	0	22	30	21	60	20
		54	52	63	66	73	71	28	26	36	35	44	47
		55	53	64	65	74	72	29	27	37	38	45	46
	300	120	19	150	18	0	23	30	22	60	21	90	20
		63	66	73	71	28	26	36	35	44	47	54	52
		64	65	74	72	29	27	37	38	45	46	55	53
	330	150	19	0	24	30	23	60	22	90	21	120	20
		73	71	28	26	36	35	44	47	54	52	63	66
		74	72	29	27	37	38	45	46	55	53	64	65

MPSRA	Tap No.
Run No. for RUF B03	Run No. for RUF B01
Run No. for RUF B04	Run No. for RUF B02

TABLE II (Continued)

BOTTOM RIGHT NOZZLE  $M = 0.9$ 

		DISTANCE FORWARD OF NOZZLE EXIT											
		$X/D = .058$		$X/D = .232$		$X/D = .406$		$X/D = .580$		$X/D = .753$		$X/D = .928$	
ANGLE OF FIXED NOZZLE ~ DEGREES	0	0	25	30	36	60	35	90	34	120	33	150	32
		28	26	36	35	44	47	54	52	63	66	73	71
		29	27	37	38	45	46	55	53	64	65	74	72
	30	30	25	60	36	90	35	120	34	150	33	0	26
		36	35	44	47	54	52	63	66	73	71	28	26
		37	38	45	46	55	53	64	65	74	72	29	27
	60	60	25	90	36	120	35	150	34	0	27	30	26
		44	47	54	52	63	66	73	71	28	26	36	35
		45	46	55	53	64	65	74	72	29	27	37	38
	90	90	25	120	36	150	35	0	28	30	27	60	26
		54	52	63	66	73	71	28	26	36	35	44	47
		55	53	64	65	74	72	29	27	37	38	45	46
	120	120	25	150	36	0	29	30	28	60	27	90	26
		63	66	73	71	28	26	36	35	44	46	54	52
		64	65	74	72	29	27	37	38	45	47	55	53
	150	150	25	0	30	30	29	60	28	90	27	120	26
		73	71	28	26	36	35	44	47	54	52	63	66
		74	72	29	27	37	38	45	46	55	53	64	65
	180	0	31	30	30	60	29	90	28	120	27	150	26
		28	26	36	35	44	47	54	52	63	66	73	71
		29	27	37	38	45	46	55	53	64	65	74	72
	210	30	31	60	30	90	29	120	28	150	27	0	32
		36	35	44	47	54	52	63	66	73	71	28	26
		37	38	45	46	55	53	64	65	74	72	29	27
	240	60	31	90	30	120	29	150	28	0	33	30	32
		44	47	54	52	63	66	73	71	28	26	36	35
		45	46	55	53	64	65	76	72	29	27	37	38
	270	90	31	120	30	150	29	0	34	30	33	60	32
		54	52	63	66	73	71	28	26	36	35	44	47
		55	53	64	65	74	72	29	27	37	38	45	46
	300	120	31	150	30	0	35	30	34	60	33	90	32
		63	66	73	71	28	26	36	35	44	47	54	52
		64	65	74	72	29	27	37	38	45	46	55	53
	330	150	31	0	36	30	35	60	34	90	33	120	32
		73	71	28	26	36	35	44	47	54	52	63	66
		74	72	29	27	37	38	45	46	55	53	64	65

MPSRA	Tap No.
Run No. for RUF003	Run No. for RUF001
Run No. for RUF004	Run No. for RUF002



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TABLE II (Continued)

TOP NOZZLE  $M = 1.2$

		DISTANCE FORWARD OF NOZZLE EXIT											
		$X/D = .058$		$X/D = .232$		$X/D = .406$		$X/D = .580$		$X/D = .753$		$X/D = .925$	
ANGLE OF FIXED NOZZLE IN DEGREES	0	0	1	30	12	60	11	90	10	120	9	150	8
		24	22	34	30	42	40	50	48	59	62	77	75
		25	23	33	31	43	41	51	49	60	61	78	76
	30	30	1	60	12	90	11	120	10	150	9	0	2
		34	30	42	40	50	48	59	62	77	75	24	22
		33	31	43	41	51	49	60	61	78	76	25	23
	60	60	1	90	12	120	11	150	10	0	3	30	2
		42	40	50	48	59	62	77	75	24	22	34	30
		43	41	51	49	60	61	78	76	25	23	33	31
	90	90	1	120	12	150	11	0	4	30	3	60	2
		50	48	59	62	77	75	24	22	34	30	42	40
		51	49	60	61	78	76	25	23	33	31	43	41
	120	120	1	150	12	0	5	30	4	60	3	90	2
		59	62	77	75	24	22	34	30	42	40	50	48
		60	61	78	76	25	23	33	31	43	41	51	49
	150	150	1	0	6	30	5	60	4	90	3	120	2
		77	75	24	22	34	30	42	40	50	48	59	62
		78	76	25	23	33	31	43	41	51	49	60	61
	180	0	7	30	6	60	5	90	4	120	3	150	2
		24	22	34	30	42	40	50	48	59	62	77	75
		25	23	33	31	43	41	51	49	60	61	78	76
	210	30	7	60	6	90	5	120	4	150	3	0	8
		34	30	42	40	50	48	59	62	77	75	24	22
		33	31	43	41	51	49	60	61	78	76	25	23
	240	60	7	90	6	120	5	150	4	0	9	30	8
		42	40	50	48	59	62	77	75	24	22	34	30
		43	41	51	49	60	61	78	76	25	23	33	31
	270	90	7	120	6	150	5	0	10	30	9	60	8
		50	48	59	62	77	75	24	22	34	30	42	40
		51	49	60	61	78	76	25	23	33	31	43	41
	300	120	7	150	6	0	11	30	10	60	9	90	8
		59	62	77	75	24	22	34	30	42	40	50	48
		60	61	78	76	25	23	33	31	43	41	51	49
	330	150	7	0	12	30	11	60	10	90	9	120	8
		77	75	24	22	34	30	42	40	50	48	59	62
		78	76	25	23	33	31	43	41	51	46	60	61

MPSKA	Tap No.
Run No. for RUFA07	Run No. for RUFA05
Run No. for RUFA08	Run No. for RUFA06

TABLE 1: (Continued)

BOTTOM LEFT NOZZLE  $M = 1.2$ 

		DISTANCE FORWARD OF NOZZLE EXIT											
		$X/D = .058$		$X/D = .232$		$X/D = .406$		$X/D = .580$		$X/D = .753$		$X/D = .928$	
RAY OF FIXED NOZZLE ~ DEGREES	0	0	13	30	24	60	23	90	22	120	21	150	20
		24	22	34	30	42	40	50	48	59	62	77	75
		25	23	33	31	43	41	51	49	60	61	78	76
	30	30	13	60	24	90	23	120	22	150	21	0	14
		34	30	42	40	50	48	59	62	77	75	24	22
		33	31	43	41	51	49	60	61	78	76	25	23
	60	60	13	90	24	120	23	150	22	0	15	30	14
		42	40	50	48	59	62	77	75	24	22	34	30
		43	41	51	49	60	61	78	76	25	23	33	31
	90	90	13	120	24	150	23	0	16	30	15	60	14
		50	48	59	62	77	75	24	22	34	30	42	40
		51	49	60	61	78	76	25	23	33	31	43	41
	120	120	13	150	24	0	17	30	16	60	15	90	14
		59	62	77	75	24	22	34	30	42	40	50	48
		60	61	78	76	25	23	33	31	43	41	51	49
	150	150	13	0	18	30	17	60	16	90	15	120	14
		77	75	24	22	34	30	42	40	50	48	59	62
		78	76	25	23	33	31	43	41	51	49	60	61
	180	0	19	30	18	60	17	70	16	120	15	150	14
		24	22	34	30	42	40	50	48	59	62	77	75
		25	23	33	31	43	41	51	49	60	61	78	76
	210	30	19	60	18	90	17	120	16	150	15	0	20
		34	30	42	40	50	48	59	62	77	75	24	22
		33	31	43	41	51	49	60	61	78	76	25	23
	240	60	19	90	18	120	17	150	16	0	21	30	20
		42	40	50	48	59	62	77	75	24	22	34	30
		43	41	51	49	60	61	78	76	25	23	33	31
	270	90	19	120	18	150	17	0	22	30	21	60	20
		50	48	59	62	77	75	24	22	34	30	42	40
		51	49	60	61	78	76	25	23	33	31	43	41
	300	120	19	150	18	0	23	30	22	60	21	90	20
		59	62	77	75	24	22	34	30	42	40	50	48
		60	61	78	76	25	23	33	31	43	41	51	49
	330	150	19	0	24	30	23	60	22	90	21	120	20
		77	75	24	22	34	30	42	40	50	48	59	62
		78	76	25	23	33	31	43	41	51	46	60	61

MPSRA	Tap No.
Run No. for RUFBO7	Run No. for RUFBO5
Run No. for RUFBO8	Run No. for RUFBO6

TABLE II (Continued)

BOTTOM RIGHT NOZZLE

 $M=1.2$ 

		DISTANCE FORWARD OF NOZZLE EXIT											
		$X/D=.058$		$X/D=.232$		$X/D=.406$		$X/D=.580$		$X/D=.753$		$X/D=.928$	
ANGLE OF FIXED NOZZLE ~ DEGREES	0	0	25	30	36	60	35	90	34	120	33	150	32
		24	22	34	30	42	40	50	48	59	62	77	75
		25	23	33	31	43	41	51	49	60	61	78	76
	30	30	25	60	36	90	35	120	34	150	33	0	26
		34	30	42	40	50	48	59	62	77	75	24	22
		33	31	43	41	51	49	60	61	78	76	25	23
	60	60	25	90	36	120	35	150	34	0	27	30	26
		42	40	50	48	59	62	77	75	24	22	34	30
		43	41	51	49	60	61	78	76	25	23	33	31
	90	90	25	120	36	150	35	0	28	30	27	60	26
		50	48	59	62	77	75	24	22	34	30	42	40
		51	49	60	61	78	76	25	23	33	31	43	41
	120	120	25	150	36	0	29	30	28	60	27	0	26
		59	62	77	75	24	22	34	30	42	40	50	48
		60	61	78	76	25	23	33	31	43	41	51	49
	150	150	25	0	30	30	29	60	28	90	27	120	26
		77	75	24	22	34	30	42	40	50	48	59	62
		78	76	25	23	33	31	43	41	51	49	60	61
	180	0	31	30	30	60	29	90	28	120	27	150	26
		24	22	34	30	42	40	50	48	59	62	77	75
		25	23	33	31	43	41	51	49	60	61	78	76
	210	30	31	60	30	90	29	120	28	150	27	0	32
		34	30	42	40	50	48	59	62	77	75	24	22
		33	31	43	41	51	49	60	61	78	76	25	23
	240	60	31	90	30	120	29	150	28	0	33	30	32
		42	40	50	48	59	62	77	75	24	22	34	30
		43	41	51	49	60	61	78	76	25	23	33	31
	270	90	31	120	30	150	29	0	34	30	33	60	32
		50	48	59	62	77	75	24	22	34	30	42	40
		51	49	60	61	78	76	25	23	33	31	43	41
	300	120	31	150	30	0	35	30	34	60	33	90	32
		59	62	77	75	24	22	34	30	42	40	50	48
		60	61	78	76	25	23	33	31	43	41	51	49
	330	150	31	0	36	30	35	60	34	70	33	120	32
		77	75	24	22	34	30	42	40	50	48	59	62
		78	76	25	23	33	31	43	41	51	46	60	61

MPSRA	Tap No.
Run No. for RUF C07	Run No. for RUF C05
Run No. for RUF C08	Run No. for RUF C06

TABLE II (Continued)

TEST: Calspan T14-053										DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 22 June, 1973																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
DATA SET IDENTIFIER		CONFIGURATION		SCH. D.		PARAMETERS/VALUES										NO. OF RUNS		MACH NUMBERS		TEST RUN NUMBERS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
$\alpha$	$\beta$	$\alpha$	$\beta$	WPS	POWER	QPR	SEMR	GPI	GYI	GYZ	GY3	$\gamma$			0.9	1.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									</

\*See Description at end of this table.

TEST: Calspan T14-053										DATE: 22 June, 1973									
DATA SET/RUN NUMBER COLLATION SUMMARY																			
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES								NO. OF RUNS	MACH NUMBERS						
		$\alpha$	$\beta$	WIND POWER	OPR	SCMPR	GPI	GY1	GY2	GY3	L								
RUF037	$\phi_2 T, S,$	0	D	30°	$\phi N$	28.31	2.02	+11°	-9°	-9°	0°		0.9	1.2					
038		0	D	30°	$\phi FF$	-	-	T	T	T	T		37						
040		C	O	60°	$\phi FF$	-	-						38						
041		0	D	T	$\phi FF$	-	-							40					
042		C	O		$\phi N$	36.20	2.33							41					
043		0	D		$\phi N$	36.20	2.33							42					
044		C	O		$\phi N$	28.31	2.02						44	43					
045		0	D		$\phi N$	28.31	2.02						45						
046		0	D		$\phi FF$	-	-						46						
047		C	O		$\phi FF$	-	-						47						
048		C	O	90°	$\phi FF$	-	-							48					
049		0	D	T	$\phi FF$	-	-							49					
050		C	O		$\phi N$	36.20	2.33							50					
051		0	D		$\phi N$	36.20	2.33							51					
052		C	O		$\phi FF$	-	-						52						
053		0	D		$\phi FF$	-	-						53						
054		C	O		$\phi N$	28.31	2.02						54						
055		0	D		$\phi N$	28.31	2.02						55						

		7	13	19	25	31	37	43	49	55	61	67	75	76
$\alpha$ OR $\beta$	SCHEDULES													
	COEFFICIENTS													
$\alpha$ A: -8, -6, -4, -2, 0, 2, 4, 6, 8	DOVAR (1)													
	DOVAR (2)													
$\alpha$ C: -8, -4, 0, 4, 6	DOVAR (1)													
	DOVAR (2)													

TABLE II (Continued)

TEST: Calspan T14-053										DATE: 22 June, 1973									
DATA SET / RUN NUMBER COLLATION SUMMARY																			
DATA SET IDENTIFIER		CONFIGURATION		SCHD.		PARAMETERS/VALUES								NO. OF RUNS		MACH NUMBERS			
α	β	WPSR	PRMTR	ØPR	SQPR	GPI	GY1	GP2	GY2	GP3	GY3								
C	O	120°	ØN	36.20	2.33	+11°	-9°	0°	-9°	0°	-9°			0.9	1.2				
O	D		ØN	36.20	2.33														
C	O		ØFF	-	-														
O	D		ØFF	-	-														
C	O		ØN	28.31	2.02									63					
O	D		ØN	28.31	2.02									64					
O	D		ØFF	-	-									65					
C	O		ØFF	-	-									66					
C	O	150°	ØFF	-	-									71					
O	D		ØFF	-	-									72					
C	O		ØN	28.31	2.02									73					
O	D		ØN	28.31	2.02									74					
C	O		ØFF	-	-									75					
O	D		ØFF	-	-									76					
C	O		ØN	36.20	2.33									77					
O	D		ØN	36.20	2.33									78					
C	O	0°	ØFF	-	-	0°	0°	0°	-3.5°	0°	+3.5°			81					
O	D	0°	ØFF	-	-	0°	0°	0°	-3.5°	0°	+3.5°			82	*				
		7	13	19	25	31	37	43	49	55	61	67	75	76					
Coefficients																			
α OR β		αA: -8, -6, -4, -2, 0, 2, 4, 6, 8																	
SCHEDULES		αC: -8, -4, 0, 4, 6																	
		βB: -8, -6, -4, -2, 0, 2, 4, 6, 8																	
		βD: -6, -3, 0, 3, 6																	
* Grounding from β = +3° to +6° (See Repeat runs 105-103)																			

TABLE II (Continued)

TEST: Calspan T14-053															DATE: 2 <sup>nd</sup> June, 1973														
DATA SET / RUN NUMBER COLLATION SUMMARY																													
DATA SET IDENTIFIER		CONFIGURATION		SCHD.		PARAMETERS/VALUES										NO. OF RUNS		MACH NUMBERS											
$\alpha$	$\beta$	MPRA	Power	$\phi$	SEMP	Number	GPI	GY1	GY2	GP3	GY3																		
RUF 083	$\phi$ , T.S.	C	O	O	0°	$\phi$ N	36.10	2.33	0°	0°	0°	-3.5°	0°	+3.5°	0.9														
084		O	D		T	$\phi$ N	36.20	2.33						*	1.2														
085		C	O			$\phi$ N	95.8	2.33							83														
086		C	O			$\phi$ N	66.7	2.33							84														
087		C	O			$\phi$ N	36.20	3.17							85														
088		C	O			$\phi$ FF	-	-							86														
089		O	D			$\phi$ FF	-	-							87														
090		C	O			$\phi$ N	28.31	2.02							88														
091		O	D			$\phi$ N	28.31	2.02							89														
092		C	O			$\phi$ N	70.5	2.02							90														
093		C	O			$\phi$ N	48.6	2.02							91														
094		C	O			$\phi$ N	28.31	2.40							92														
095		C	O			$\phi$ FF	-	-	+10°						93														
096		O	D			$\phi$ FF	-	-							94														
097		C	O			$\phi$ N	36.20	2.33							95														
098		O	D			$\phi$ N	36.20	2.33							96														
099		O	D			$\phi$ N	97.6	2.33							97														
100		C	O			$\phi$ FF	-	-							98														
															99														
															100														
1	7	13	19	25	31	37	43	49	55	61	67	75	76																
															Coefficients														
															A: -8, -6, -4, -2, 0, 2, 4, 6, 8														
															C: -8, -4, 0, 4, 6														
															B: -8, -6, -4, -2, 0, 2, 4, 6, 8														
															D: -6, -3, 0, 3, 6														
															NDV														

1 7 13 19 25 31 37 43 49 55 61 67 75 76

$\alpha$  OR  $\beta$  SCHEDULES  $\alpha$  A: -8, -6, -4, -2, 0, 2, 4, 6, 8  
 $\alpha$  C: -8, -4, 0, 4, 6

Coefficients

$\beta$  B: -8, -6, -4, -2, 0, 2, 4, 6, 8  
 $\beta$  D: -6, -3, 0, 3, 6

\* Grounding from  $\beta = +3^\circ$  to  $+6^\circ$   
 (See Repeat runs 105-108)

TEST: Ca/span	T14-053
TABLE II (Continued)	
DATA SET/RUN NUMBER COLLATION SUMMARY	
DATE: 22 June, 1973	

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TABLE II. (Continued)

TEST: Calspan T14-053										DATE: 22 June, 1973									
DATA SET / RUN NUMBER COLLATION SUMMARY																			
DATA SET IDENTIFIER	CONFIGURATION	SCHD.	PARAMETERS/VALUES										MACH NUMBERS						
			WSPR	PWR	SPPR	GPI	GP2	GY2	GP3	GY3	GP4	GP5							
RUE109	$\phi, T, S,$	C O	O°	Q'N	36.20	2.33	+11°	-3.5°	+11°	+7°	+7°	0.9	1.2						
110		O D	T	Q'N	36.20	2.33	T	T	T	T	T		110						
111		C O		Q'N	28.31	2.02						111							
112		O D		Q'N	28.31	2.02						112							
113		C O		Q'N	36.20	2.33	-11°	-8°	-8°	-7°	-7°		113						
114		O D		Q'N	36.20	2.33	T	T	T	T	T		114						
115		C O		Q'N	28.31	2.02						115							
116		C D		Q'N	28.31	2.02						116							
117	Hoses Off	A O		OFF	-	-	C°	C°	C°	C°	C°		117						
118		O B		OFF	-	-	T	T	T	T	T		118						
119		A O		OFF	-	-						119							
120		O B		OFF	-	-						120							

TABLE II (Continued)

TYPE OF DATA	DATASETS	COEFFICIENTS
<u>LAUNCH VEHICLE FORCE DATA</u>		
Source data	RUF015-120	CN, CLMF, CLM, CAF, CA, CYN, CBL
Power-off longitudinal coefficients and increments due to power	SUF073-115* (pitch runs)	DCAF, DCAB, DCN, DCLMF, CAF, CAB, CN, CLMF
Power-off rudder effectiveness derivatives and increments due to power	PUF097, 102 PUF098, 103	DDCAFR, DDCNDR, DDCMFR, DCAFR, DCN/DR, DCMFDR DDCYDR, DDCBLR, DDCYNR, DCY/DR, DCBLDR, DCYNDR
Power-off alpha derivatives, a.c. position in pitch, and increments due to power	QUF073-115* (pitch runs)	DCN/A, DCMF/A, DXAC/L, CN/A, CLMF/A, XAC/L
Power-off beta derivatives, a.c. position in yaw, and increments due to power	QUF074-116* (yaw runs)	DCY/B, DCBL/B, DCYN/B, DYAC/L, CY/B, CBL/B, CYN/B, XYAC/L
<u>HINGE MOMENT DATA</u>		
Wing root loads and rudder and elevon hinge moments	AUF015-120	CNW, CHW, CBW, CHR, CHEI, CHEO

\*NOTE: Power effect dataset numbers are the same as the power-on run numbers of the source data.

TABLE II (Concluded)

DATASET COEFFICIENTS	
TYPE OF DATA	COEFFICIENTS
<u>MPS NOZZLE DATA</u>	
Source pressure data	
	RUFA01-08 CP (upper nozzle)
	RUFB01-08 CP (lower left hand nozzle)
	RUFC01-08 CP (lower right hand nozzle)
Normal net pressure coefficient, upper surface-lower surface	
	NUFA01-08 DELCP
	NUFB01-08 DELCP
	NURC01-08 DELCP
Side net pressure coefficient, right side-left side	
	SUFA01-08 DELCP
	SUFB01-08 DELCP
	SUFC01-08 DELCP
Integrated local loads coefficients (axial distributions)	
	AUFA01-08 DCN/DX, DCNMDX, DCY/DX, DCYNDX
	AUFB01-08 DCN/DX, DCNMDX, DCY/DX, DCYNDX
	AUFC01-08 DCN/DX, DCNMDX, DCY/DX, DCYNDX
Integrated total loads coefficients	
	DUFA01-08 CN, CY, CFR, THETAF, CLM, CYN, CMR, THETAM
	DUFB01-08 CN, CY, CFR, THETAF, CLM, CYN, CMR, THETAM
	DUFC01-08 CN, CY, CFR, THETAF, CLM, CYN, CMR, THETAM
<u>WING PRESSURE DATA</u>	
Lower surface	
	LUF015, 18-20, 73, CP
	77, 81-120
Upper surface	
	UUF015, 18-20, 73, CP
	77, 81-120

TABLE III.  
MODEL COMPONENT DESCRIPTIONS

MODEL COMPONENT: B10 - Body

GENERAL DESCRIPTION: Fuselage, 2A Configuration, Lightweight Orbiter per  
Rockwell Lines VL70-000089 "B".

Scale Model = 0.019

DRAWING NUMBER:

VL70-000089 "B"  
VL70-000092, 93, 94 "A"  
SS-A-00092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length ~ in.	<u>1328.3</u>	<u>25.238</u>
Max. Width ~ in. ( $\theta X_0 = 1528.3$ )	<u>265.0</u>	<u>5.035</u>
Max. Depth ~ in. ( $\theta X_0 = 1480.52$ )	<u>248.0</u>	<u>4.712</u>
Fineness Ratio	<u>5.012</u>	<u>5.012</u>
Area ~ Ft. <sup>2</sup>		
Max. Cross-Sectional	<u>456.4</u>	<u>0.1648</u>
Planform	<u>-</u>	<u>-</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>-</u>	<u>-</u>

REPRODUCIBILITY OF THE  
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TABLE III. (Continued)

MODEL COMPONENT: C5 Orbiter Canopy

GENERAL DESCRIPTION: Orbiter Canopy for Light Weight Orbiter Configuration

Model Scale = 0.019

DRAWING NUMBER: VL-70-000092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
STA. FWD. Bulkhead, in	<u>391.0</u>	<u>7.429</u>
STA. T.E., in	<u>560.0</u>	<u>10.640</u>
Canopy/Body Intersection, IN	<u>391.0</u>	<u>7.429</u>

TABLE III. (Continued)

MODEL COMPONENT: D7 - Manipulator HousingGENERAL DESCRIPTION: 2A Configuration Per Rockwell Lines VL70-000093

Scale Model = 0.019

DRAWING NUMBER: VL70-000093; SS-A-00092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length ~ in.	<u>891.0</u>	<u>16.739</u>
Max. Width ~ in.	<u>51.0</u>	<u>0.969</u>
Max. Depth ~ in.	<u>23.0</u>	<u>0.437</u>
Fineness Ratio	<u>-</u>	<u>-</u>
Area		
Max. Cross-Sectional	<u>-</u>	<u>-</u>
Planform	<u>-</u>	<u>-</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>-</u>	<u>-</u>

Location at:

Ⓢ Fuselage BP = 0.0  
     WP = 500.0 INFS  
     X<sub>0</sub>426.0 to X<sub>0</sub>1307.0 INFS

TABLE III. (Continued)

MODEL COMPONENT: WING-W 87 Lightweight OrbiterGENERAL DESCRIPTION: Orbiter Configuration per Rockwell Lines VL70-000093

NOTE: (Dihedral angle is defined at the lower  
surface of the wing at the 75.33%  
element line  
projected into a plane perpendicular to the FRL.

Scale Model = 0.019

TEST NO.

DWG. NO. VL70-000093

SSA-A00091, 92

DIMENSIONS:

FULL-SCALE

MODEL SCALE

## TOTAL DATA

Area (Theo.)  $\text{Ft}^2$ 

Planform

Span (Theo) In.

Aspect Ratio

Rate of Taper

Taper Ratio

Dihedral Angle, degrees

Incidence Angle, degrees

Aerodynamic Twist, degrees

Sweep Back Angles, degrees

Leading Edge

Trailing Edge

0.25 Element Line

Chords: ~ IN

Root (Theo) B.P.O.O.

Tip, (Theo) B.P.

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

## EXPOSED DATA

Area (Theo)  $\text{Ft}^2$ 

Span, (Theo) In. BP108

Aspect Ratio

Taper Ratio

Chords

Root BP108

Tip 1.00  $\frac{b}{2}$ 

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

Airfoil Section (Rockwell Mod NASA)

XXXX-64

 $t/c \text{ @ Root } \frac{b}{2} = 0.425$  $t/c \text{ @ Tip } \frac{b}{2} = 1.00$ 

Data for (1) of (2) Sides

Leading Edge Cuff

Planform Area  $\text{Ft}^2$ 

Leading Edge Intersects Fus M. L. @ Sta

Leading Edge Intersects Wing @ Sta

2690.0

936.682

2.265

1.177

0.200

3.500

3.000

+3.000

45.000

-10.24

35.209

689.24

137.85

474.51

1136.89

299.20

182.13

1752.29

720.68

2.058

0.2451

562.40

137.85

393.03

1185.31

300.20

251.76

0.10

0.12

120.33

560.0

1035.0

0.971

17.797

2.265

1.177

0.200

3.500

3.000

+3.000

45.000

-10.24

35.209

13.096

2.619

9.021

21.601

5.685

3.460

0.633

13.693

2.058

0.2451

10.686

2.619

7.468

22.521

5.704

4.783

0.10

0.12

0.0431

10.640

19.665

TABLE III. (Continued)

MODEL COMPONENT: E18 - Elevon

GENERAL DESCRIPTION: 2A Configuration Per W-87 Rockwell Lines VL70-000093

Data for (1) of (2) Sides

---

Scale Model = 0.019

---

DRAWING NUMBER: VL70-000093; SS-A-00092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area $\sim \text{ft}^2$	<u>205.52</u>	<u>0.0742</u>
Span (equivalent) $\sim \text{in.}$	<u>353.34</u>	<u>6.713</u>
Inb'd equivalent chord (B.P.115.0in), in	<u>114.78</u>	<u>2.181</u>
Outb'd equivalent chord (B.P.468.3in), in	<u>55.00</u>	<u>1.045</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.208</u>	<u>0.208</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Tailing Edge	<u>-10.24</u>	<u>-10.24</u>
Hingeline ( $X_o = 1387''$ F. S.)	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to hinge line) $\text{ft}^3$	<u>1,548.07</u>	<u>0.01062</u>
Product of Area Moment		

NOTE: The elevon panel consists of an InBD and OutBD segment. The split line dividing the segments is at B.P. 281 inches full scale (B.P. 5.339 inches Model Scale)



TABLE III. (Continued)

MODEL COMPONENT: VERTICAL - V5 (Light Wt. Orbiter Configuration)GENERAL DESCRIPTION: Centerline Vertical Tail, Double Wedge Airfoil with  
Rounded Leading EdgeModel Scale = 0.019DRAWING NUMBER: VL-70-000095; SS-A-00092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
<u>TOTAL DATA</u>		
Area (Theo) $\text{Ft}^2$	413.25	0.1492
Planform	-	-
Span (Theo) In	315.72	5.999
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.404	0.404
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.249	26.249
0.25 Element Line	41.130	41.130
Chords: Inches		
Root (Theo) WP	268.50	5.102
Tip (Theo) WP	108.47	2.061
MAC	199.81	3.796
Fus. Sta. of .25 MAC	1463.50	27.807
W. P. of .25 MAC	635.52	12.075
B. L. of .25 MAC	0.0	0.0
Airfoil Section		
Leading Wedge Angle ~ Deg	10.00	10.00
Trailing Wedge Angle ~ Deg	14.92	14.92
Leading Edge Radius, IN	2.00	0.038
Void Area ~ $\text{Ft}^2$	13.17	0.00475
Blanketed Area ~ $\text{Ft}^2$	12.67	0.00457

TABLE III. (Continued)

MODEL COMPONENT: R5 - RudderGENERAL DESCRIPTION: 2A Configuration per Rockwell Lines VL 70-000095.Scale Model = 0.019DRAWING NUMBER: VL70-000095 SS-A00091, 92

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area ~ Ft <sup>2</sup>	<u>106.38</u>	<u>0.0384</u>
Span (equivalent) ~ IN	<u>201.0</u>	<u>3.819</u>
Inb'd equivalent chord, IN	<u>91.585</u>	<u>1.710</u>
Outb'd equivalent chord, IN	<u>50.833</u>	<u>0.966</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Trailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
Area Moment (Normal to hinge line) ~ Ft <sup>3</sup>	<u>526.13</u>	<u>0.00361</u>
(Product of Area and Mean Chord)		

TABLE III. (Continued)

MODEL COMPONENT: M<sub>3</sub> - OMS PODGENERAL DESCRIPTION: 2A Lightweight Orbiter Configuration per Rockwell Lines  
VL70-000094 "A"

Scale Model = 0.019

DRAWING NUMBER: VL70-000094 "A"; SS-A-00092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length ~ in.	<u>346.0</u>	<u>6.574</u>
Max. Width ~ in. @ X <sub>0</sub> 1450.0	<u>108.0</u>	<u>2.052</u>
Max. Depth ~ in. @ X <sub>0</sub> 1500.0	<u>113.8</u>	<u>2.162</u>
Fineness Ratio	<u>-</u>	<u>-</u>
Area		
Max. Cross-Sectional	<u>-</u>	<u>-</u>
Planform	<u>-</u>	<u>-</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>-</u>	<u>-</u>

¢ of OMS POD

Z<sub>0</sub> = 463.9 INFS: WP400 + 63.9 = 463.9 INFSY<sub>0</sub> = 80.0 INFSLength: X<sub>0</sub> 1214.0 to X<sub>0</sub> 1560.0 = 346.0 INFS

TABLE III. (Continued)

MODEL COMPONENT: N8 - OMS NozzleGENERAL DESCRIPTION: Basic OMS Nozzle of the 2A Configuration per RockwellDrawings VL70-008306 and VL70-000089 "B"Scale Model = 0.019DRAWING NO. VL70-008306, VL70-000089 "B", SS-A00092

DIMENSIONS	FULL-SCALE	MODEL SCALE
MACH NO. <u>---</u>		
DIAMETER DEX ~ IN	<u>50.00</u>	<u>0.950</u>
DIAMETER DT ~ IN	<u>N/A</u>	<u>N/A</u>
DIAMETER DIN ~ IN	<u>28.00</u>	<u>0.532</u>
ΘN ~ DEGREES	<u>N/A</u>	<u>N/A</u>
AREA ~ FT <sup>2</sup>		
MAX CROSS-SECTIONAL	<u>13.635</u>	<u>0.0047</u>
GIMBAL ORIGIN	<u>X<sub>0</sub></u>	<u>Y<sub>0</sub></u> <u>Z<sub>0</sub></u>
Left NOZZLE ~ IN	<u>1518</u>	<u>-88.0</u> <u>492</u>
Right NOZZLE ~ IN	<u>1518</u>	<u>+88.0</u> <u>492</u>
NULL POSITION	<u>PITCH</u>	<u>YAW</u>
Left NOZZLE ~ Deg.	<u>15°49'</u>	<u>-12°17'</u>
Right NOZZLE ~ Deg.	<u>15°49'</u>	<u>+12°17'</u>
Intersection of Nozzle Exit Plane and Nozzle Centerline ~ IN	<u>X<sub>0</sub> = 1570.7</u>	<u>Y<sub>0</sub> = -99.15</u> <u>Z<sub>0</sub> = 507.25</u>
		<u>1.836</u> <u>9.638</u>

TABLE III. (Continued)

MODEL COMPONENT: N9 Orbiter NozzlesGENERAL DESCRIPTION: Orbiter Nozzles used for Cold Jet Plume Simulation at  
M = .9, 1.25, 1.55, 2.0, 3.0 and 3.5. All Three Model Nozzles are Mounted to  
Ball Sockets which allow Gimbal Angles of  $\pm 11^\circ$  Pitch and  $\pm 9^\circ$  Yaw  
from NULL. Model Scale = 0.019DRAWING NO. SS-A-00092; SS-A-00095

## DIMENSIONS

	FULL-SCALE	MODEL SCALE
MACH NO. <u>.9 thru 3.5</u>		
DIAMETER DEX ~ IN	<u>20.73</u>	<u>1.7038</u>
DIAMETER DT ~ IN	<u>23.126</u>	<u>0.5344</u>
DIAMETER DIN ~ IN	<u>37.336</u>	<u>0.7094</u>
$\Theta$ N ~ DEGREES	<u>-</u>	<u>-</u>
AREA ~ Ft <sup>2</sup>		
MAX CROSS-SECTIONAL (Exit)	<u>44.896</u>	<u>0.0162</u>
GIMBAL ORIGIN	<u>X<sub>0</sub></u>	<u>Y<sub>0</sub></u> <u>Z<sub>0</sub></u>
UPPER NOZZLE ~ IN (F.S., M.S.)	<u>1445.0, 27.455</u>	<u>0.0, 0.0</u> <u>443.0, 8.1</u>
BOTTOM NOZZLE ~ IN (F.S., M.S.)	<u>1467.9, 28.890</u>	<u>53.0, 1.007</u> <u>342.6, 6.4</u>
NULL POSITION	<u>PITCH</u>	<u>YAW</u>
UPPER NOZZLE	<u>16°</u>	<u>0°</u>
BOTTOM NOZZLE	<u>10°</u>	<u>3.5° (Outboard)</u>

REPRODUCIBILITY OF THE  
ORIGINAL PAGE IS POOR

TABLE III. (Continued)

MODEL COMPONENT: N<sub>10</sub> Orbiter NozzlesGENERAL DESCRIPTION: Orbiter Nozzles used for Cold Jet Plume Simulation atM = .9, 1.25, 1.55, 2.0, 3.0, and 3.5.The bottom nozzles gimbal  $\pm 11^\circ$  pitch  $\pm 9^\circ$  Yaw in Ball Sockets. The upper nozzleis fixed at  $+11^\circ$  Pitch,  $-9^\circ$  Yaw and has twelve (12) external static taps onnozzle surface. Model Scale = 0.019DRAWING NO. SS-A-00092; SS-A-00095

DIMENSIONS	FULL-SCALE	MODEL SCALE
MACH NO. <u>.9 thru 3.5</u>		
DIAMETER DEX ~ IN	<u>90.73</u>	<u>1.7238</u>
DIAMETER DT ~ IN	<u>28.126</u>	<u>0.5344</u>
DIAMETER DIN ~ IN	<u>37.336</u>	<u>0.7094</u>
$\Theta_N$ ~ DEGREES	<u>-</u>	<u>-</u>
AREA ~ Ft <sup>2</sup>		
MAX CROSS-SECTIONAL (Exit per Nozzle)	<u>44.896</u>	<u>0.0162</u>
GIMBAL ORIGIN	<u>X<sub>0</sub></u>	<u>Y<sub>0</sub></u> <u>Z<sub>0</sub></u>
UPPER NOZZLE ~ IN (F.S., M.S.)	<u>1445.0, 27.455</u>	<u>0.0, 0.0</u> <u>443.0, 8.117</u>
BOTTOM NOZZLE ~ IN (F.S., M.S.)	<u>1467.9, 27.890</u>	<u>53.0, 1.0007</u> <u>462.6, 6.510</u>
NULL POSITION	<u>PITCH</u>	<u>YAW</u>
UPPER NOZZLE	<u>16°</u>	<u>0°</u>
BOTTOM NOZZLE	<u>10°</u>	<u>3.5° (Out BD)</u>

TABLE III. (Continued)

MODEL COMPONENT: F4 Body FlapGENERAL DESCRIPTION: Aft Body Flap Used on Light Weight Orbiter ConfigurationModel Scale = 0.019DRAWING NUMBER: VL-70-000094 "A", SS-A-00092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, in	<u>84.70</u>	<u>1.609</u>
Max. Width, in	<u>265.00</u>	<u>5.035</u>
Max. Depth	<u>-</u>	<u>-</u>
Finessess Ratio	<u>-</u>	<u>-</u>
Area, Ft <sup>2</sup>		
Max. Cross-Sectional	<u>-</u>	<u>-</u>
Planform	<u>142.64</u>	<u>0.05149</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>38.65</u>	<u>0.01395</u>

TABLE III. (Continued)

COMPONENT: X<sub>8</sub> Transition Strips

DESCRIPTION: Transition grit strips used in AMES 9x7 wind tunnel.  
Microbeads were used to make grit strip. Microbead  
diameter equals 0.0065 inches.

Model Scale = 0.019

LOCATIONS: (Dimensions Model Scale)

SRM: 2 inches aft of nose (0.125" wide strip)

EOHT: 6 inches aft of nose (0.125" wide strip)

WING: 0.5 inches perpendicular to wing leading edge  
(0.125" wide strip)

VERTICAL TAIL: 0.25 inches perpendicular to tail leading  
edge (0.125" wide strip)

ORBITER BODY: 0.75 inches aft of nose (0.125" wide strip)



TABLE III. (Continued)

Model Component: Solid Rocket Motor ( $S_{10}$ )General Description: Booster solid rocket motor, body of revolution  
Data for 1 of 2 sidesModel Scale = 0.019Drawing Number: VL77-000039

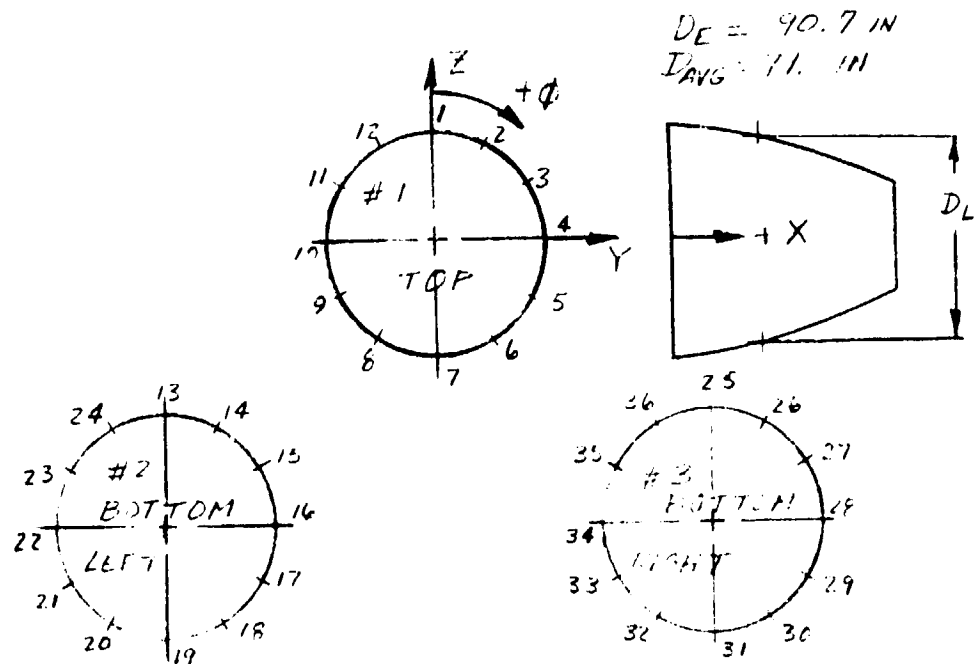
Dimensions:	<u>Full-Scale</u>	<u>Model Scale</u>
Length (includes nozzle), in.	<u>1741.0</u>	<u>33.080</u>
Max width (diameter), in.	<u>142.0</u>	<u>2.698</u>
Max depth (aft shroud diameter), in.	<u>192.0</u>	<u>3.648</u>
Fineness ratio	<u>9.0677</u>	<u>9.0677</u>
Area - ft <sup>2</sup>		
Max cross-sectional	<u>201.062</u>	<u>0.0726</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>
WP of BSRM centerline, ( $X_T$ ), in.	<u>400.0</u>	<u>7.600</u>
FS of BSRM nose, ( $X_T$ ), in.	<u>743.0</u>	<u>14.117</u>

TABLE III. (Concluded)

MODEL COMPONENT: T10 External TankGENERAL DESCRIPTION: External Oxygen Hydrogen TankConfiguration to which the Orbiter and the Two Solid Rocket Motors attachBody of revolutionModel Scale = 0.019DRAWING NUMBER: VL-70-000088 VL-78-000041

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, IN (Nose @ $X_t = 309.0$ )	<u>1865.0</u>	<u>35.435</u>
Max. Width (Dia.), IN	<u>324.0</u>	<u>6.156</u>
Max. Depth	<u>-</u>	<u>-</u>
Finess Ratio	<u>5.75617</u>	<u>5.75617</u>
Area $\text{ft}^2$		
Max. Cross-Sectional	<u>572.56</u>	<u>0.2067</u>
Planform	<u>-</u>	<u>-</u>
Wetted	<u>-</u>	<u>-</u>
Base	<u>-</u>	<u>-</u>
W.P. of Tank Centerline, ( $X_t$ ) IN	<u>400.0</u>	<u>7.600</u>

TABLE IV.



$\phi$	$X/D_E$	TAP NOS	$D_L/D_{AVG}$
0	.058	1, 13, 25	1.2817
30	.928	2, 14, 26	0.6787
60	.753	3, 15, 27	0.8592
90	.580	4, 16, 28	1.0141
120	.406	5, 17, 29	1.4179
150	.232	6, 18, 30	1.2314
180	.058	7, 19, 31	1.2817
210	.928	8, 20, 32	0.6787
240	.753	9, 21, 33	0.8592
270	.580	10, 22, 34	1.0141
300	.406	11, 23, 35	1.4179
330	.232	12, 24, 36	1.2314

TAP LOCATIONS - ORBITER NOZZLES

TABLE V.  
DIMENSIONAL DESCRIPTION  
ORBITER NOZZLES

<u>x/r*</u>	<u>r/r*</u>
	<u>EXIT PLANE</u>
0	3.2257
.1097	3.2107
.3365	3.1793
.5879	3.1430
.8660	3.1010
1.0101	3.0786
1.3342	3.0258
1.6437	2.9727
1.8428	2.9368
2.0992	2.8892
2.2421	2.8615
2.4012	2.8301
2.5782	2.7942
2.7743	2.7530
2.9918	2.7058
3.1995	2.6591
3.4008	2.6123
3.5307	2.5808
3.6999	2.5393
3.9169	2.4828
4.0378	2.4525
4.1718	2.4165
4.3215	2.3754
4.4862	2.3286
4.6980	2.2665
4.8990	2.2055
5.0303	2.1639
5.1969	2.1104
5.3945	2.0442
5.6396	1.9585
5.7848	1.9053
5.9188	1.8552
6.1246	1.7754
6.3593	1.6796
6.5565	1.5954
6.7013	1.5307
6.9143	1.4315
7.1815	1.7665
7.2455	1.2665
7.4502	1.1568
7.5569	1.0969

TABLE VI  
DIMENSIONAL DESCRIPTION  
SRM NOZZLES N<sub>17</sub>

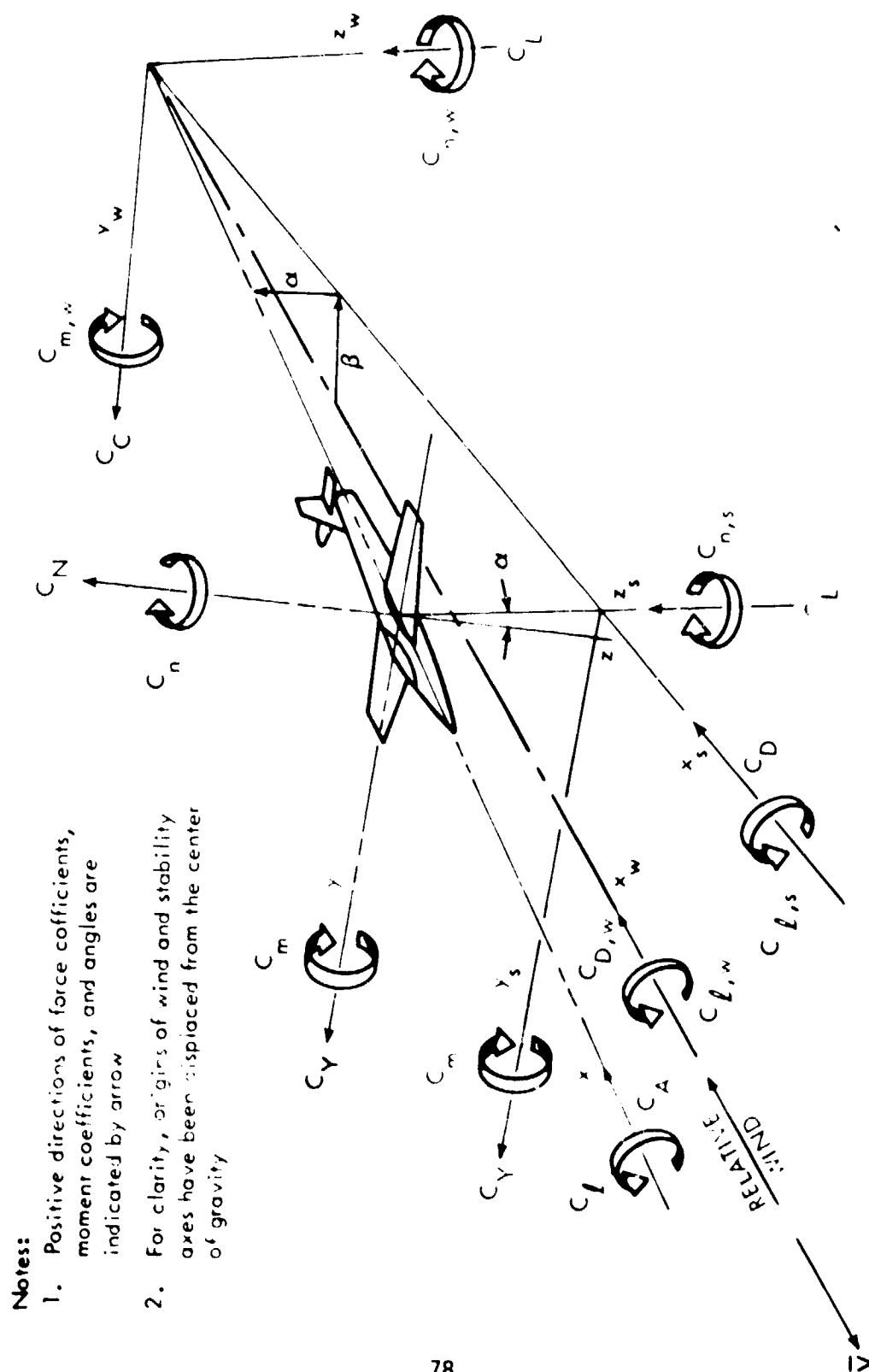
$M = 0.9, 1.2; \epsilon = 7.0$

NONDIMENSIONAL COORDINATES

initial angle =  $23^\circ$   
exit lip angle =  $11^\circ$

$r^* = 0.509$  in.

POINT NO.	AXIAL $X/r^*$	RADIAL $r/r^*$	NOZZLE GEOMETRY
1	0.00000	1.00000	Throat Plane
2	0.04689	1.00184	Circular arc section
3	0.11719	1.01155	
4	0.16409	1.02286	
5	0.21098	1.03832	
6	0.23443	1.04766	Conical section
7	0.54862	1.18106	
8	0.80001	1.28777	
9	0.86284	1.31443	Contoured section
10	1.13502	1.42312	
11	1.50148	1.57291	
12	1.93249	1.73122	
13	2.29137	1.85372	
14	2.67702	1.97678	
15	3.08772	2.09868	
16	3.52343	2.21816	
17	3.98088	2.33472	
18	4.45984	2.44695	
19	4.79089	2.51908	
20	5.13099	2.58921	
21	5.42124	2.64578	Exit Plane



**Notes:**

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrow
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

Figure 1. - Axis Systems.

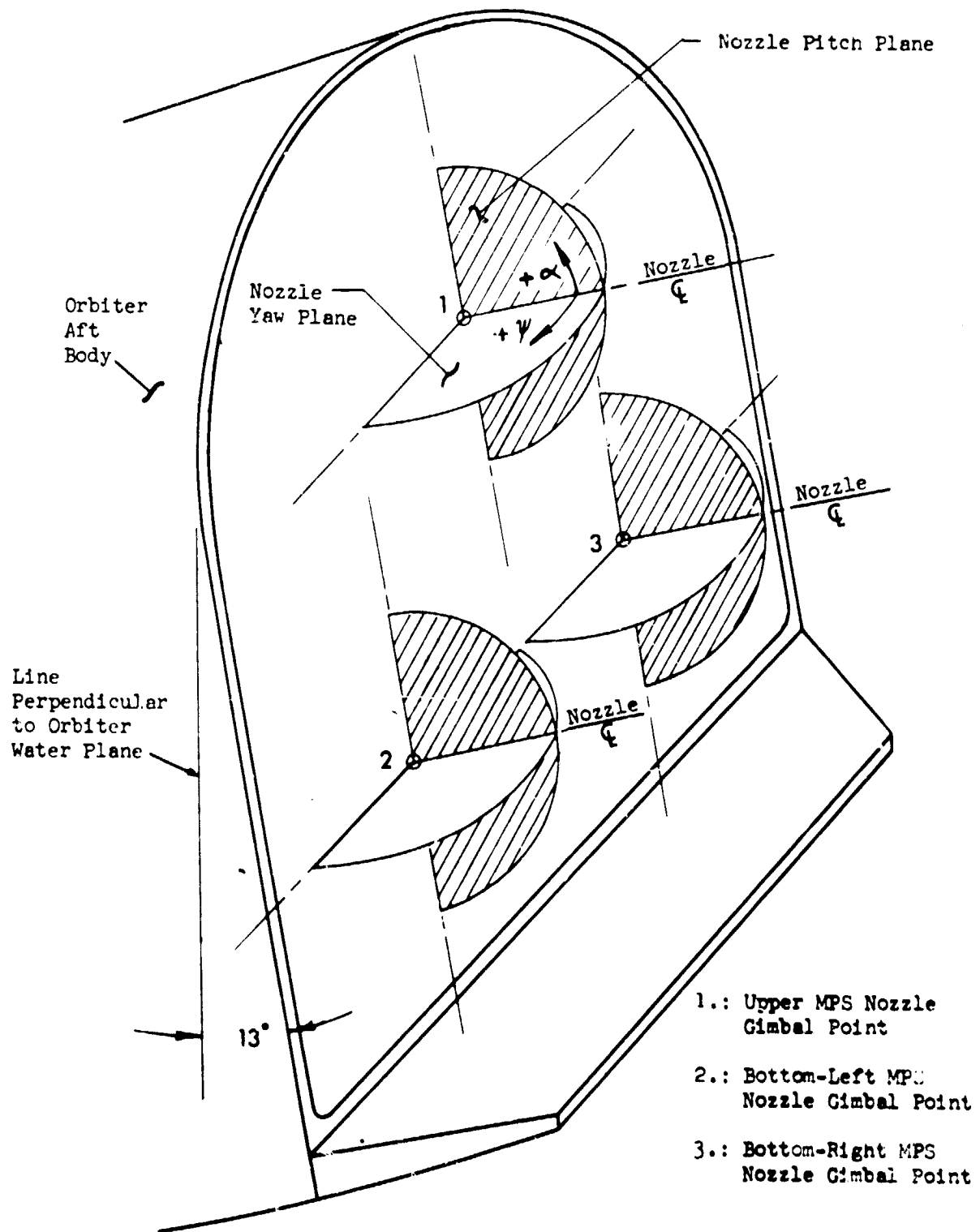


Figure 2.a. - Gimbal Planes and Sign Conventions.

This plane is parallel to the nozzle base plate. All gimbal angles are set and measured with reference to this plane.

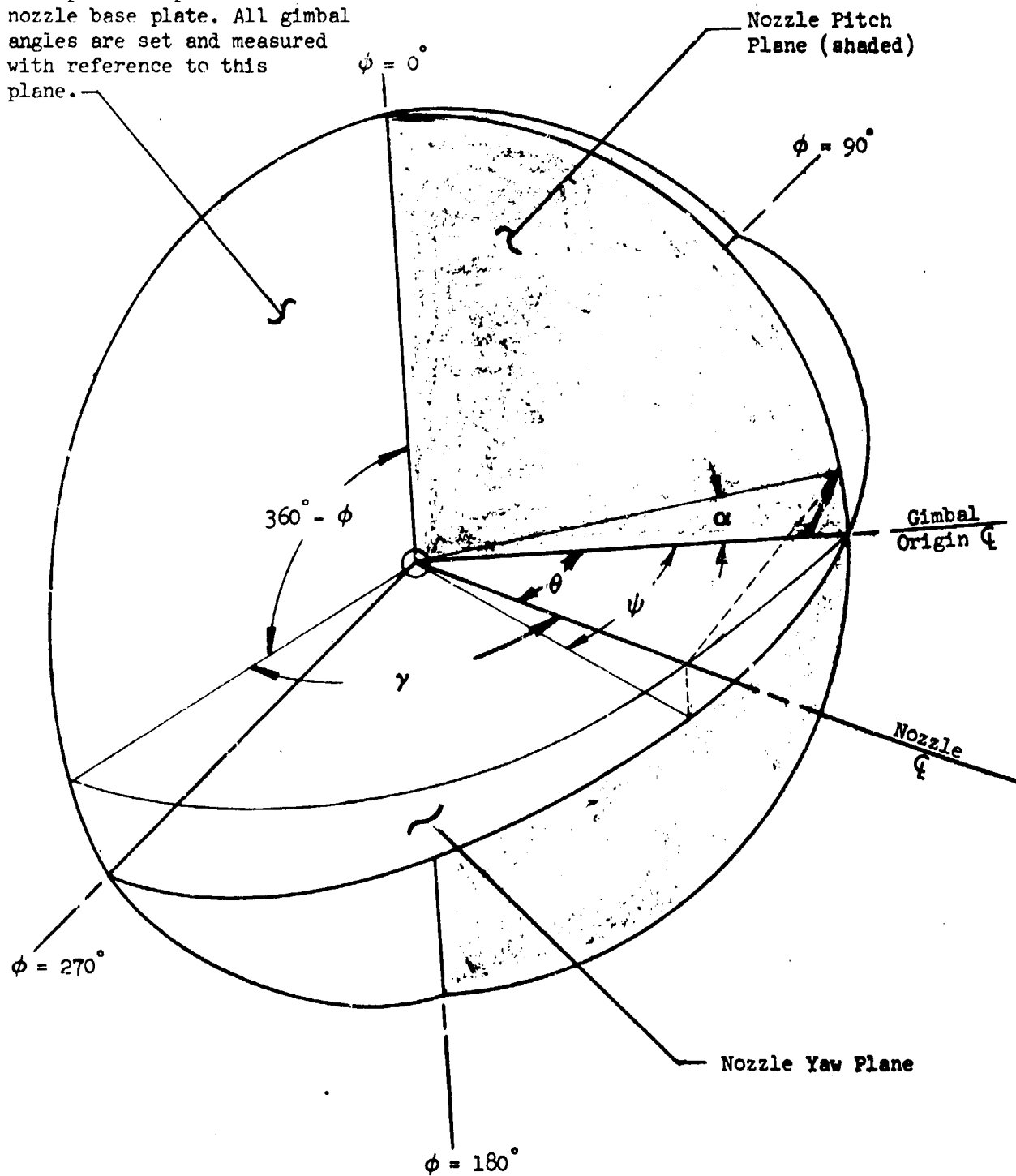
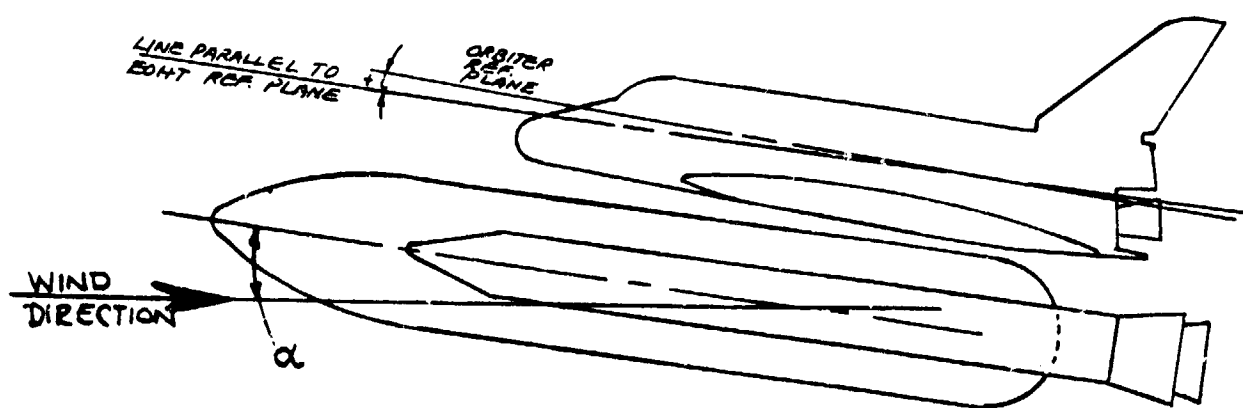


Figure 2.b.- Nozzle Gimbal Angle.



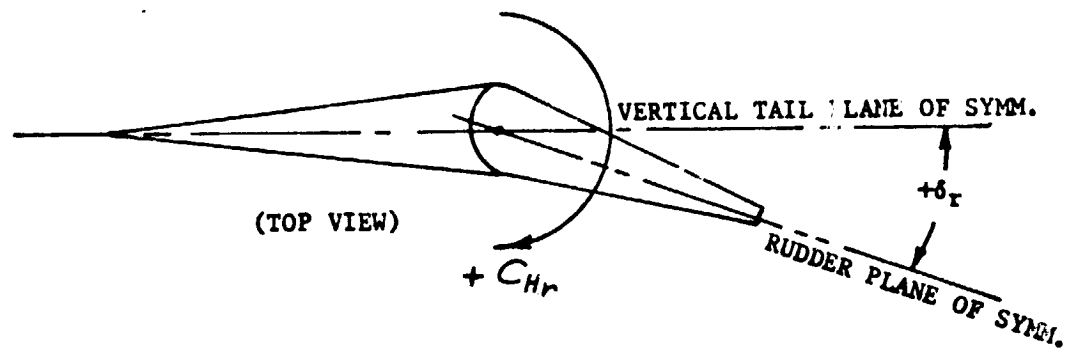


Angle of Sideslip,  $\beta$

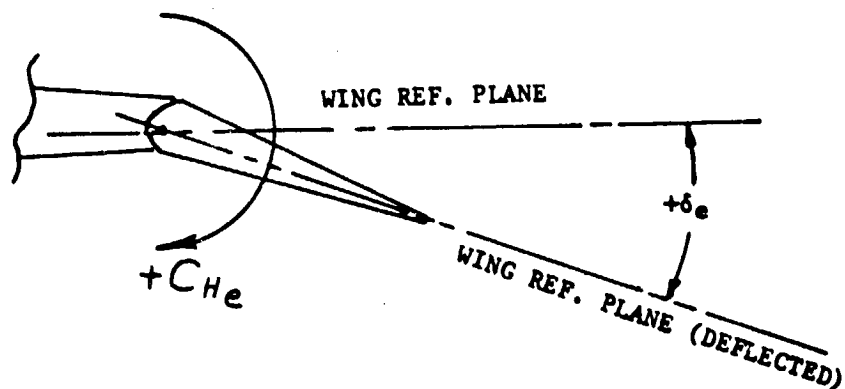


Angle of Attack,  $\alpha$ , and Angle of Incidence,  $i$

Figure 2.c. - Sign Convention for Angle of Sideslip, Angle of Attack, and Incidence Angle.



Rudder Deflection Angle,  $\delta_r$   
and hinge moment,  $C_{Hr}$



Elevon Deflection Angle,  $\delta_e$   
and hinge moment,  $C_{He}$

Figure 2.d. - Sign Convention for Rudder and Elevon Deflections.

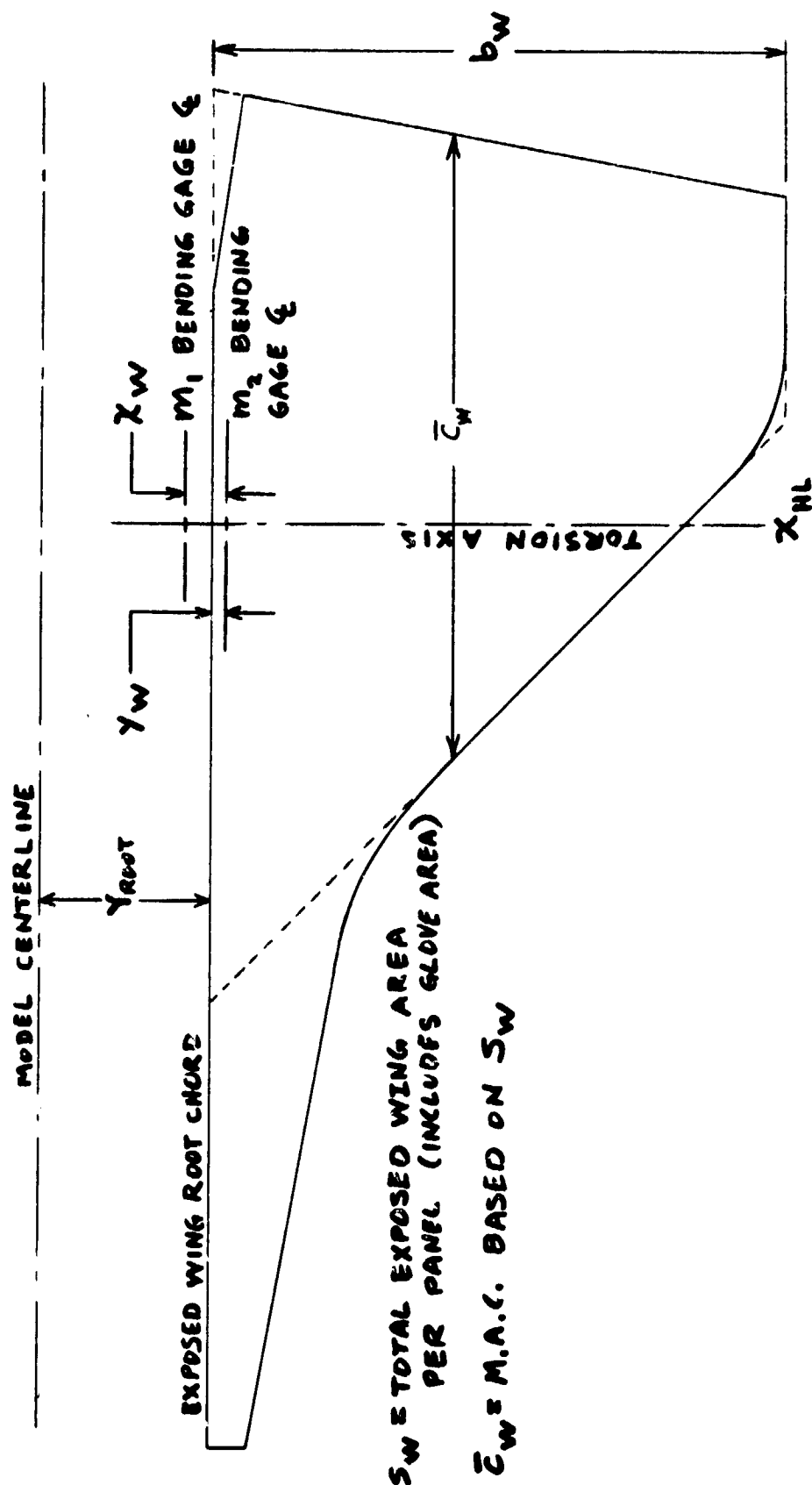


Figure 2.e. - Wing Hinge Moment Data Reduction Dimensions.

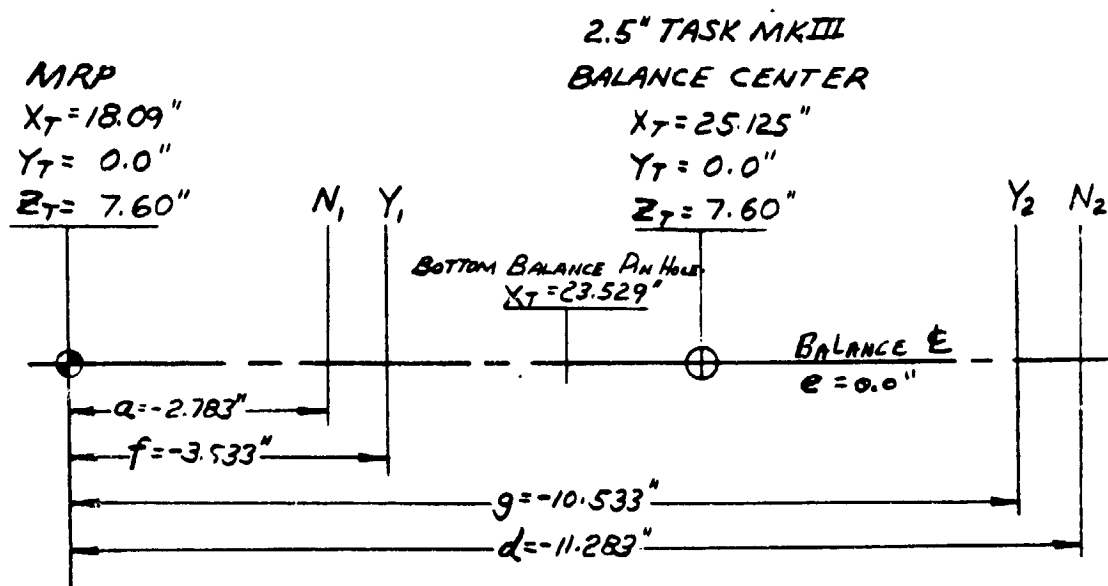


Figure 2.f. - Moment Transfer Diagram.

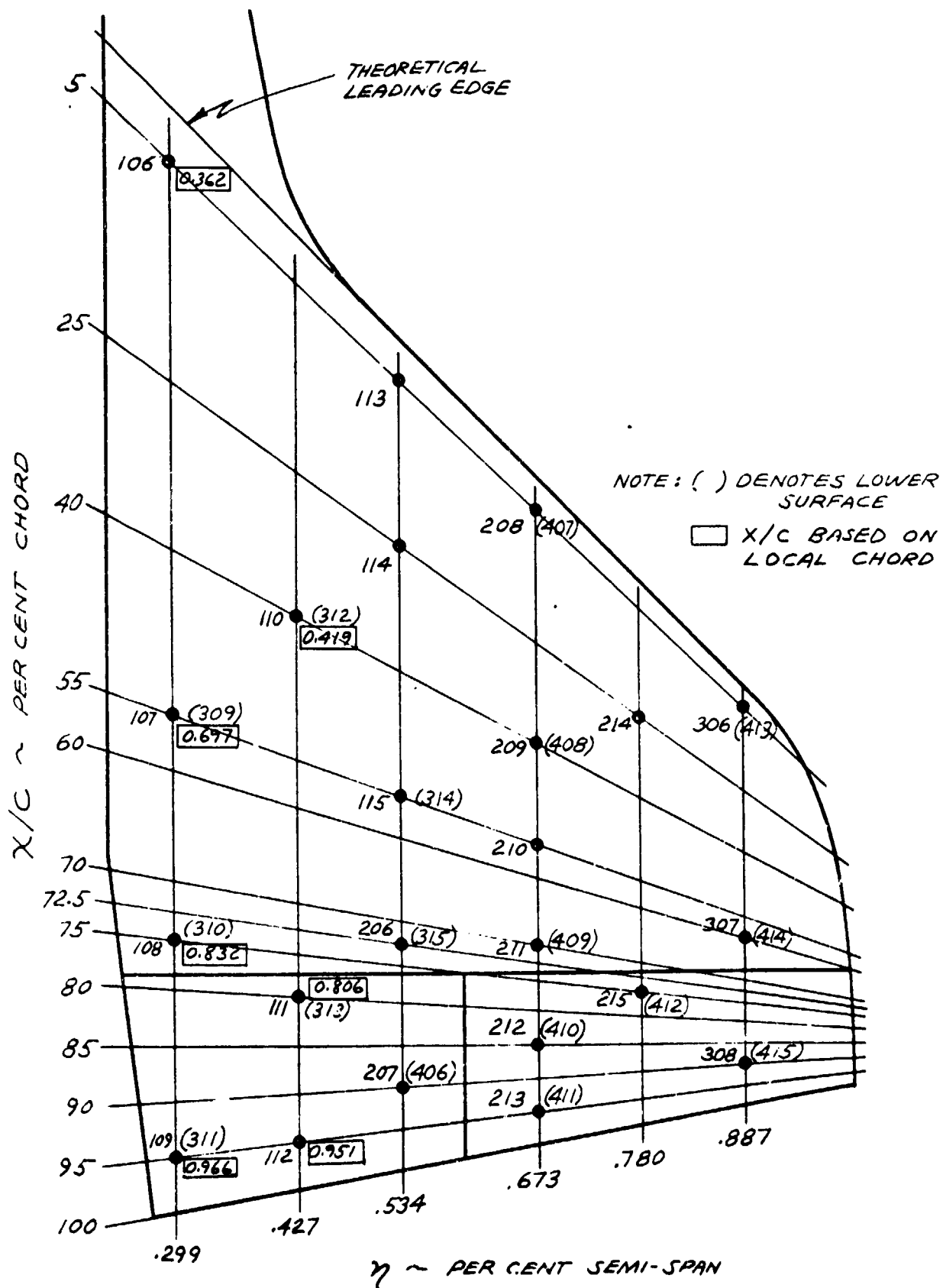


Figure 3.a. - Wing Pressure Tap Locations for Right Hand Wing Panel.

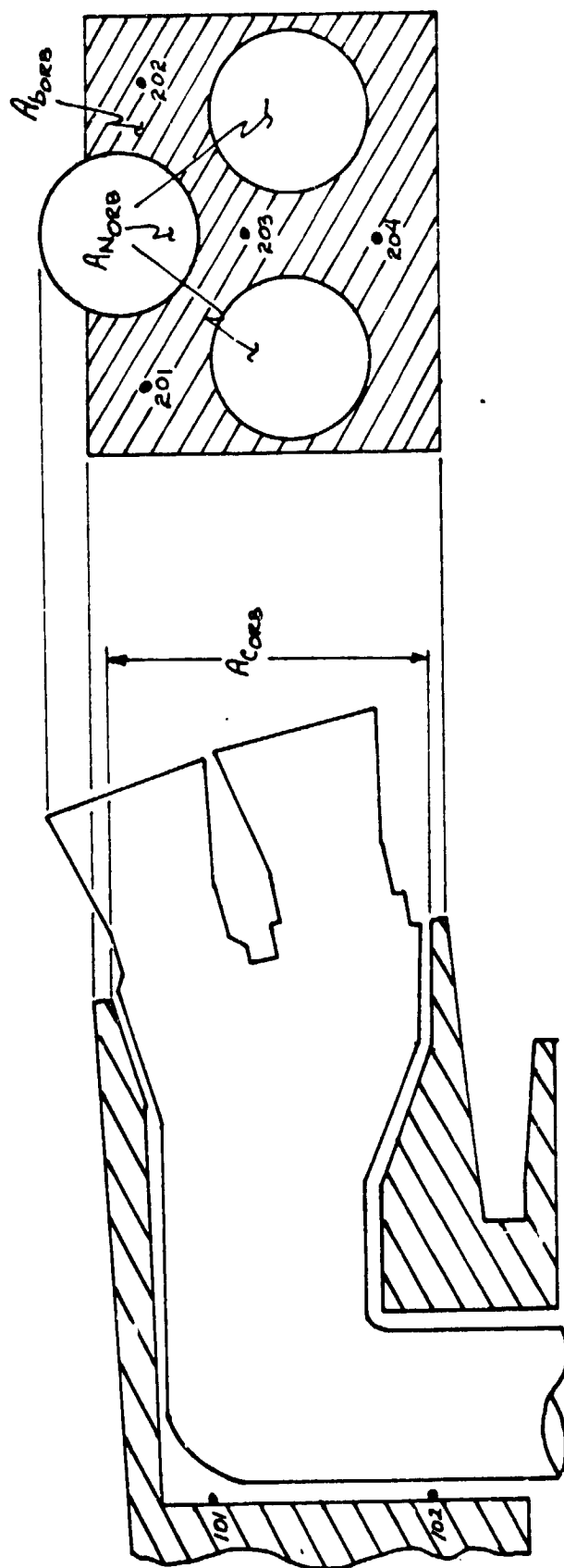


Figure 3.b. - Orbiter Base and Cavity Pressure Tap Locations.

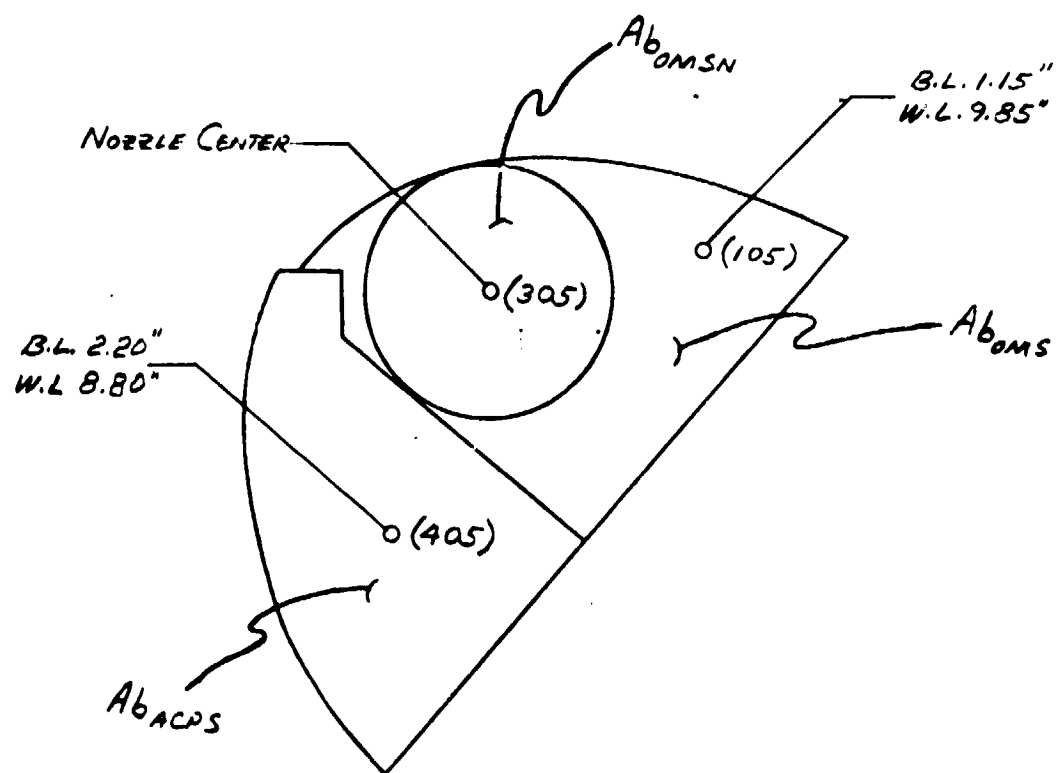


Figure 3.c. - OMS Pcd Base Static Pressure Tap Locations.

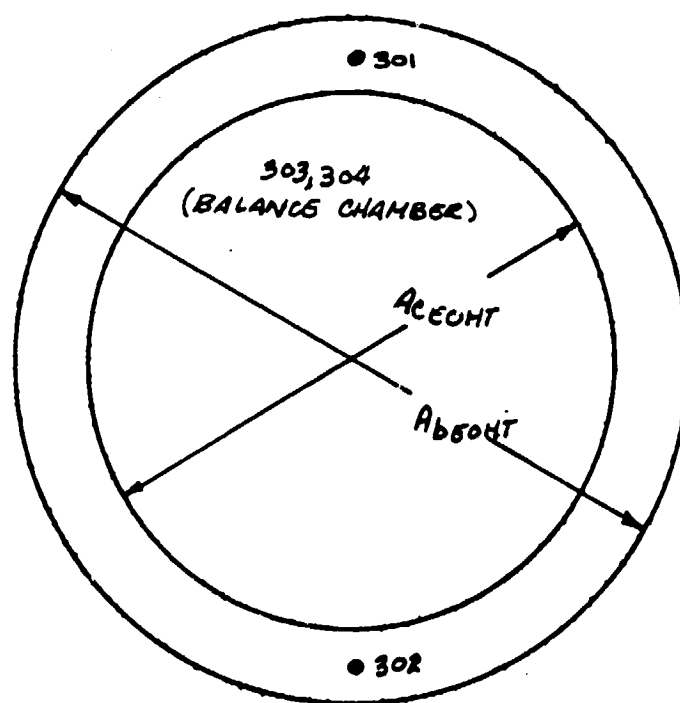


Figure 3.d. - EOHT Pressure Tap Locations.



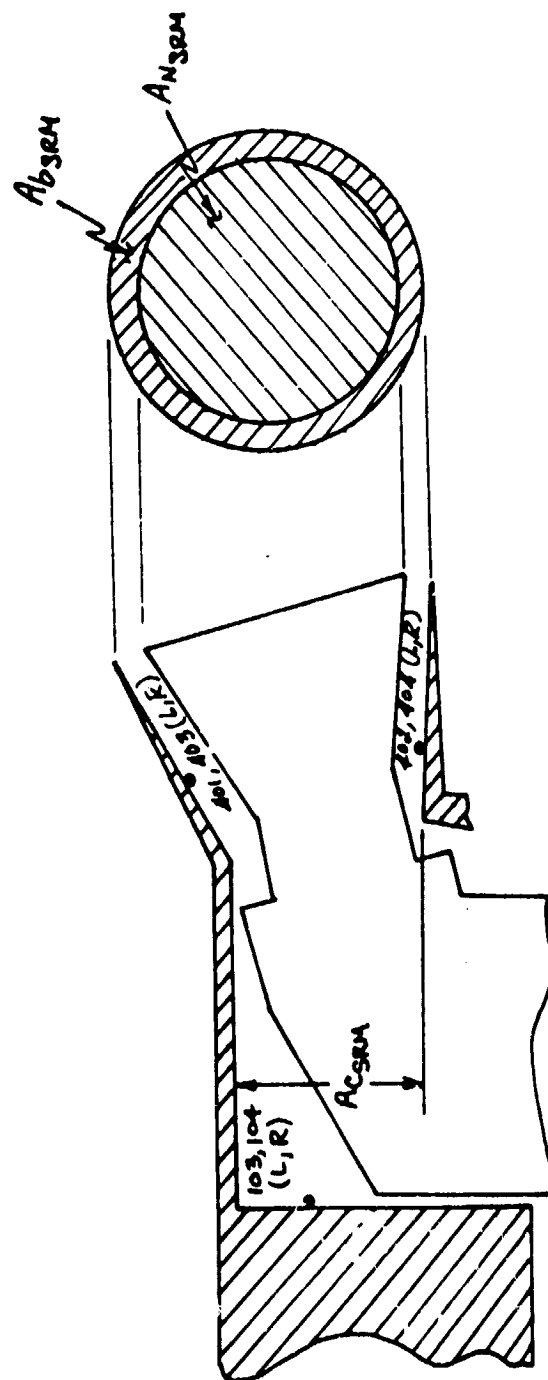
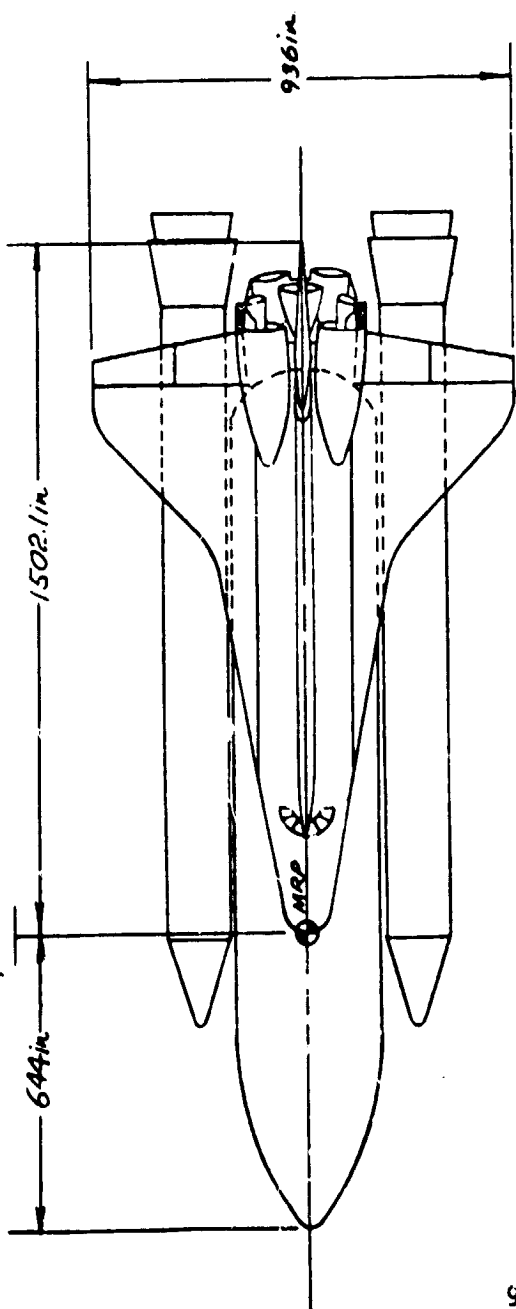


Figure 3.e. - SRM Pressure Tap Locations.

$$X_T = 953.0 \text{ in}$$



90

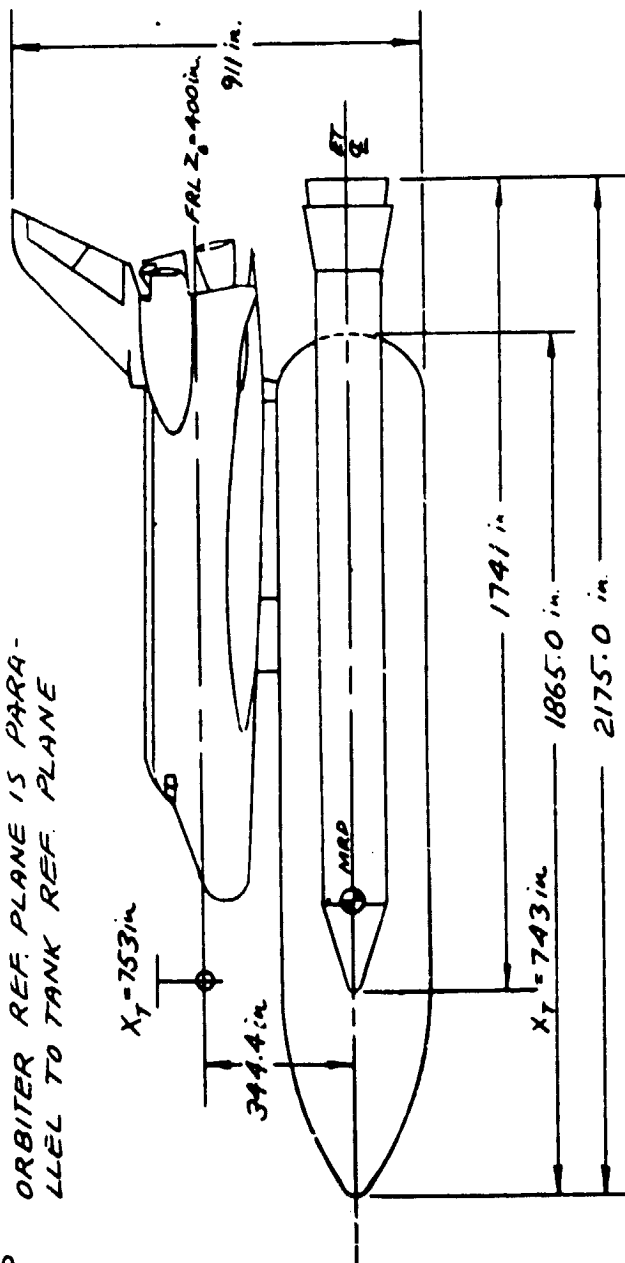
ORBITER REF. PLANE IS PARALLEL TO TANK REF. PLANE

$$X_T = 753 \text{ in}$$

$$344.4 \text{ in}$$

$$FRL Z_0 = 400 \text{ in}$$

$$911 \text{ in}$$



$$X_T = 309 \text{ in}$$

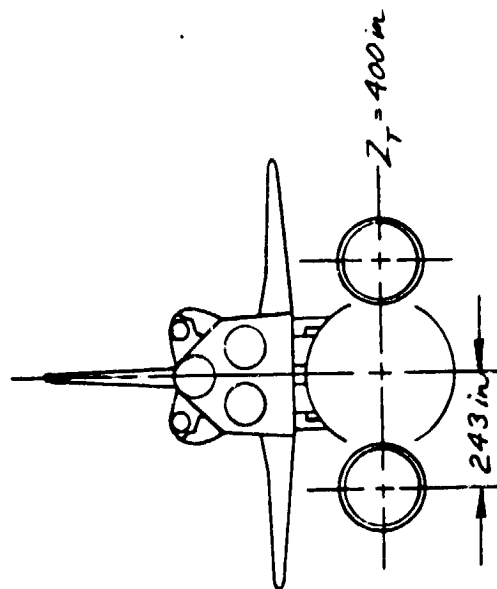


Figure 4. - Ascent Vehicle Configuration.

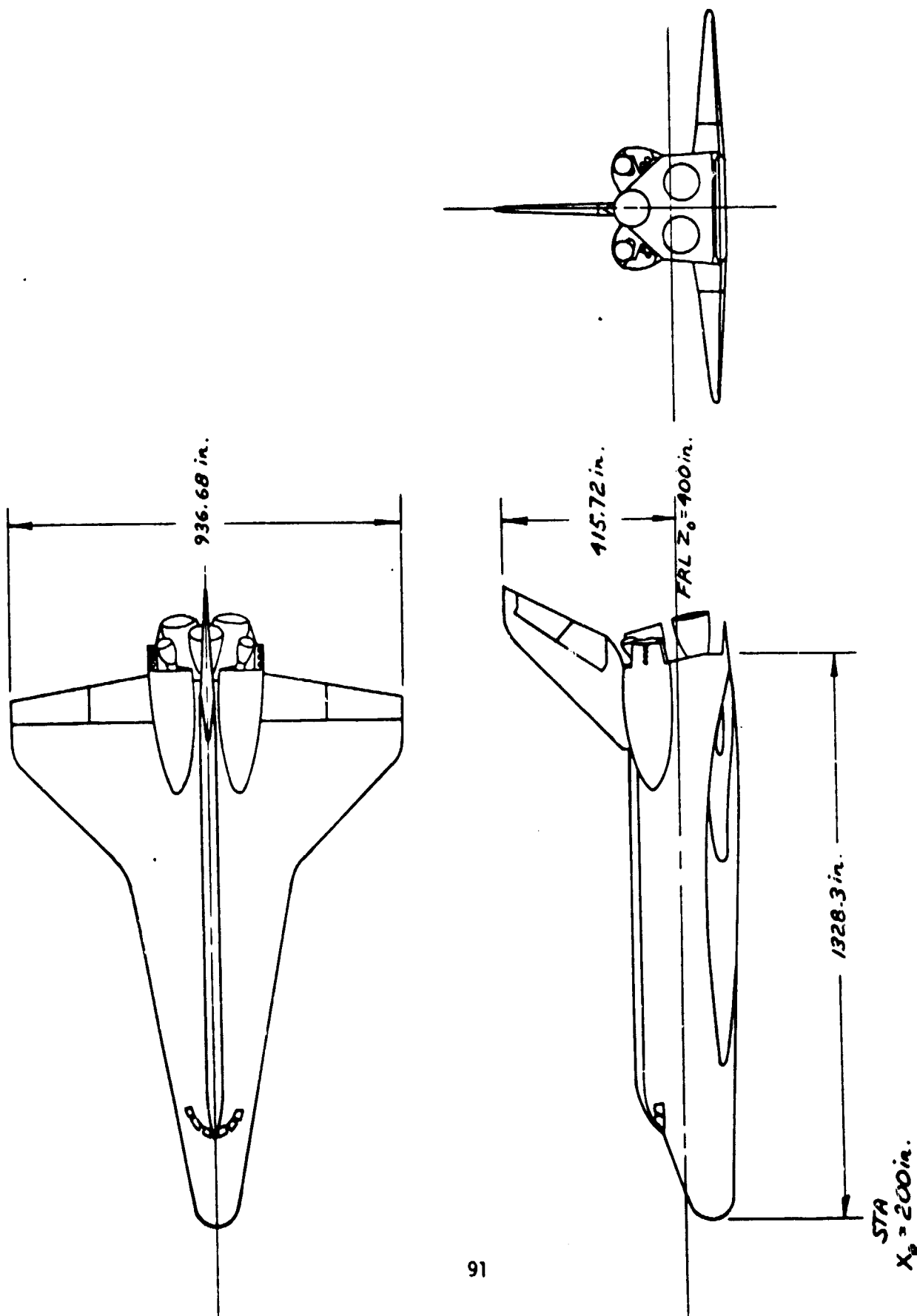


Figure 4.a. - 2A Orbiter, Basic Dimensions.

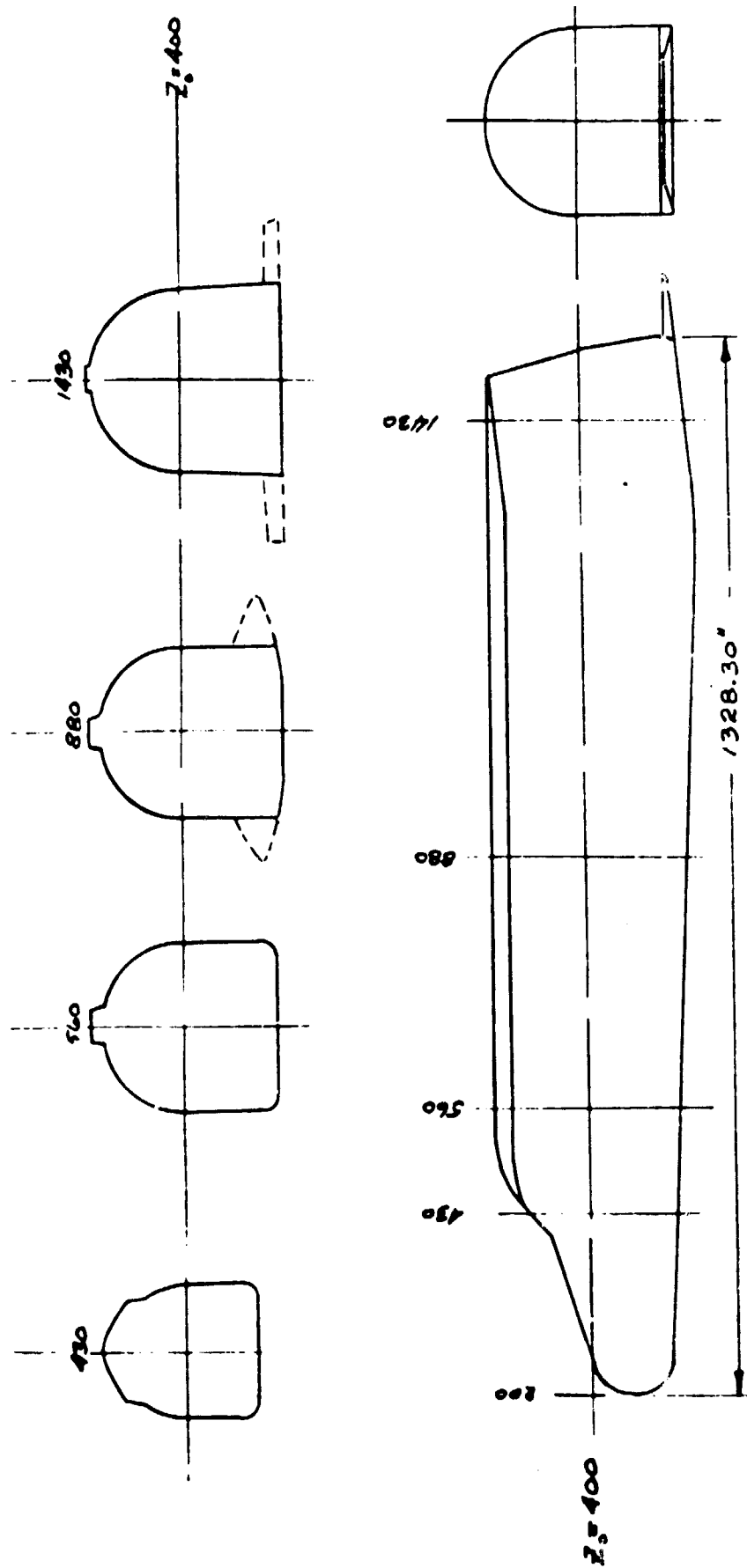


Figure 4.b. - 2A Orbiter, Fuselage with Body Flap.

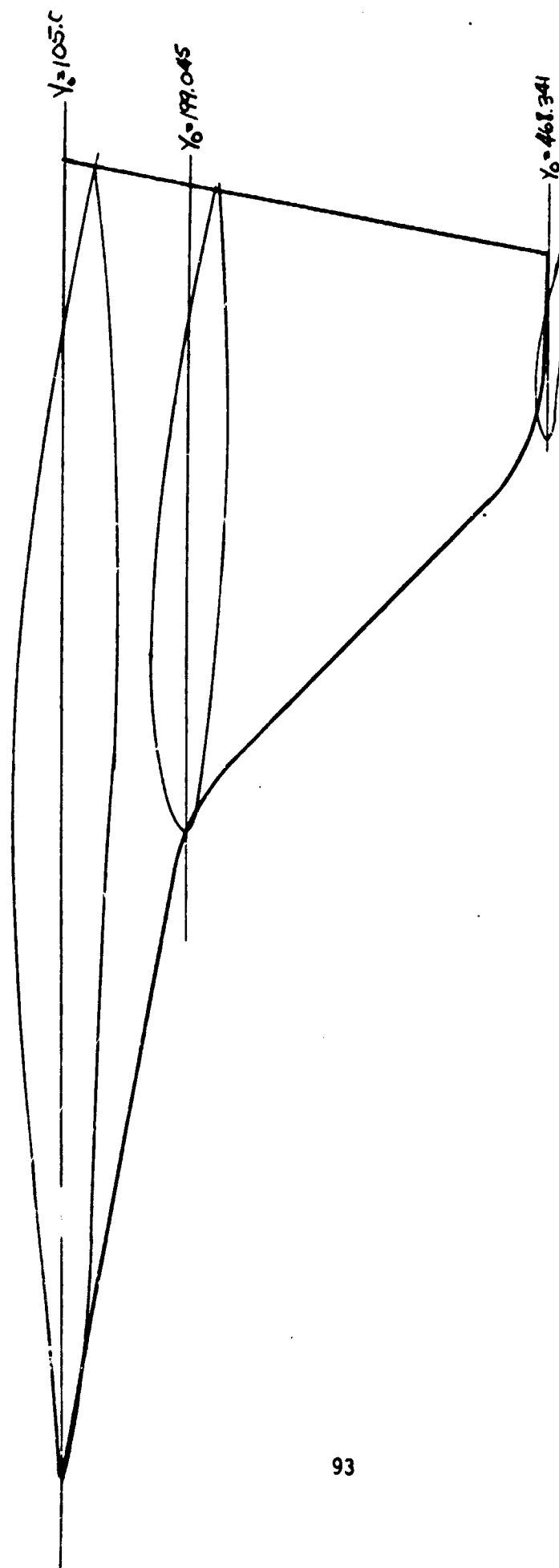


Figure 4.c. - 2A Orbiter, Wing.

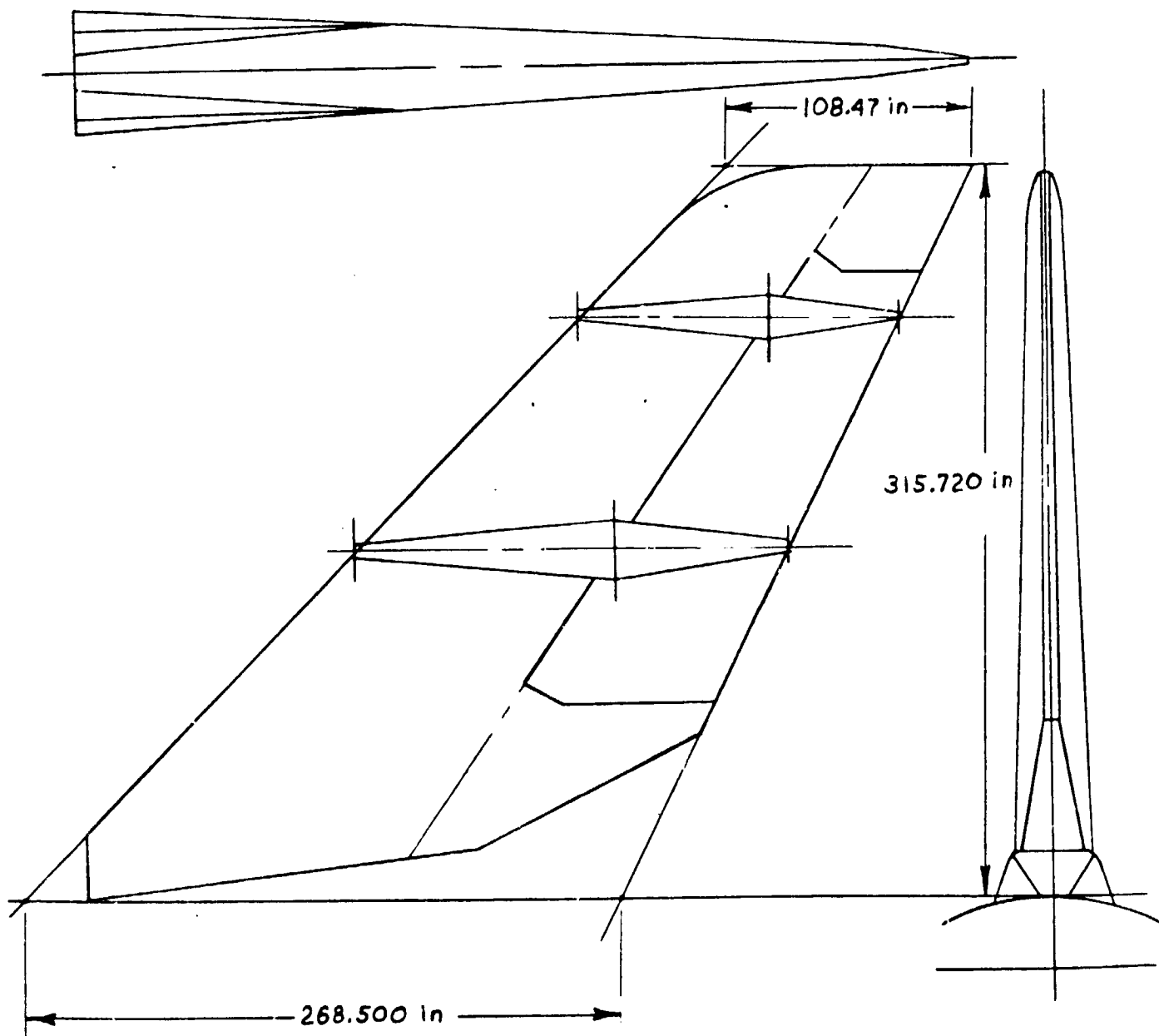


Figure 4.d. - 2A Orbiter, Vertical Tail.

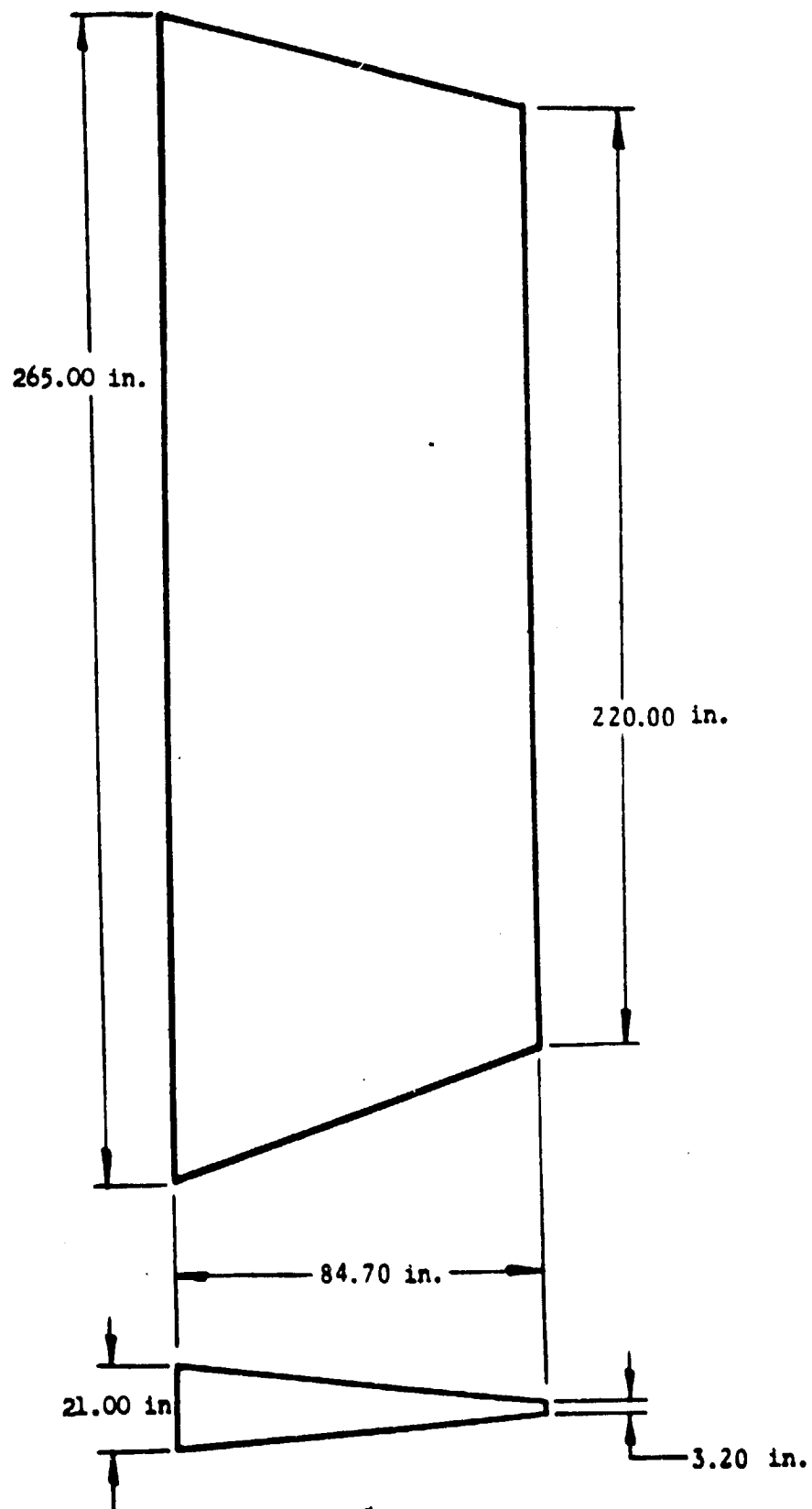


Figure 4.e. - 2A Orbiter, Body Flap, F4.

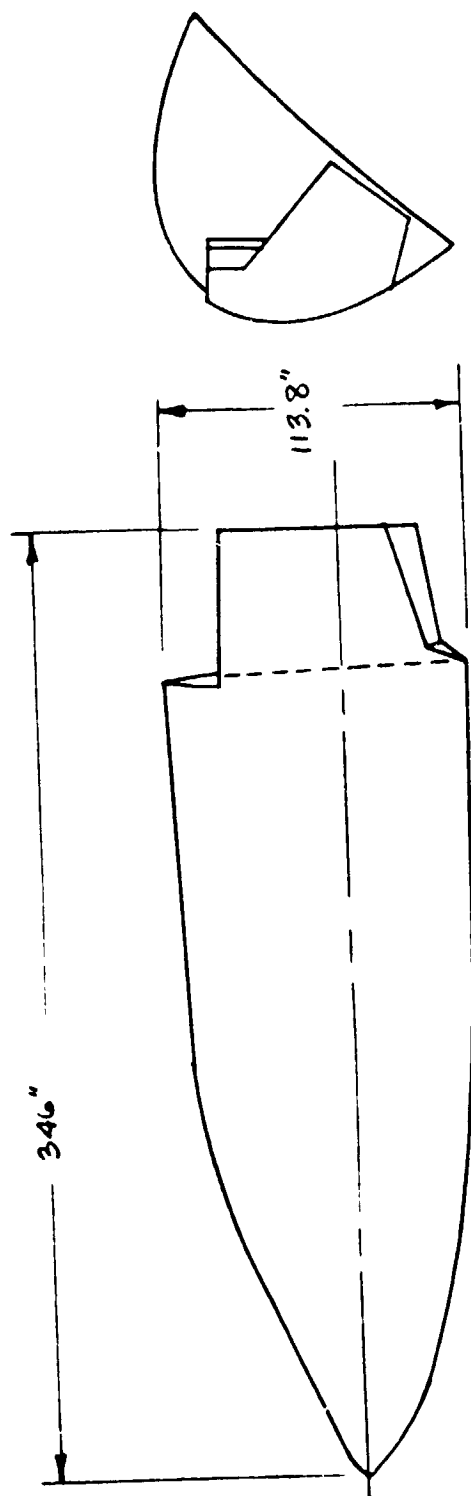


Figure 4.f. - 2A Orbiter, OMS Pod.



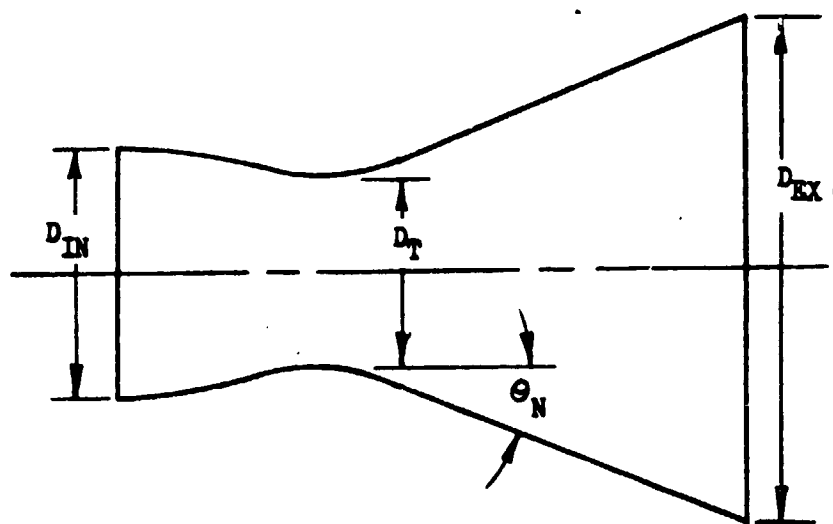
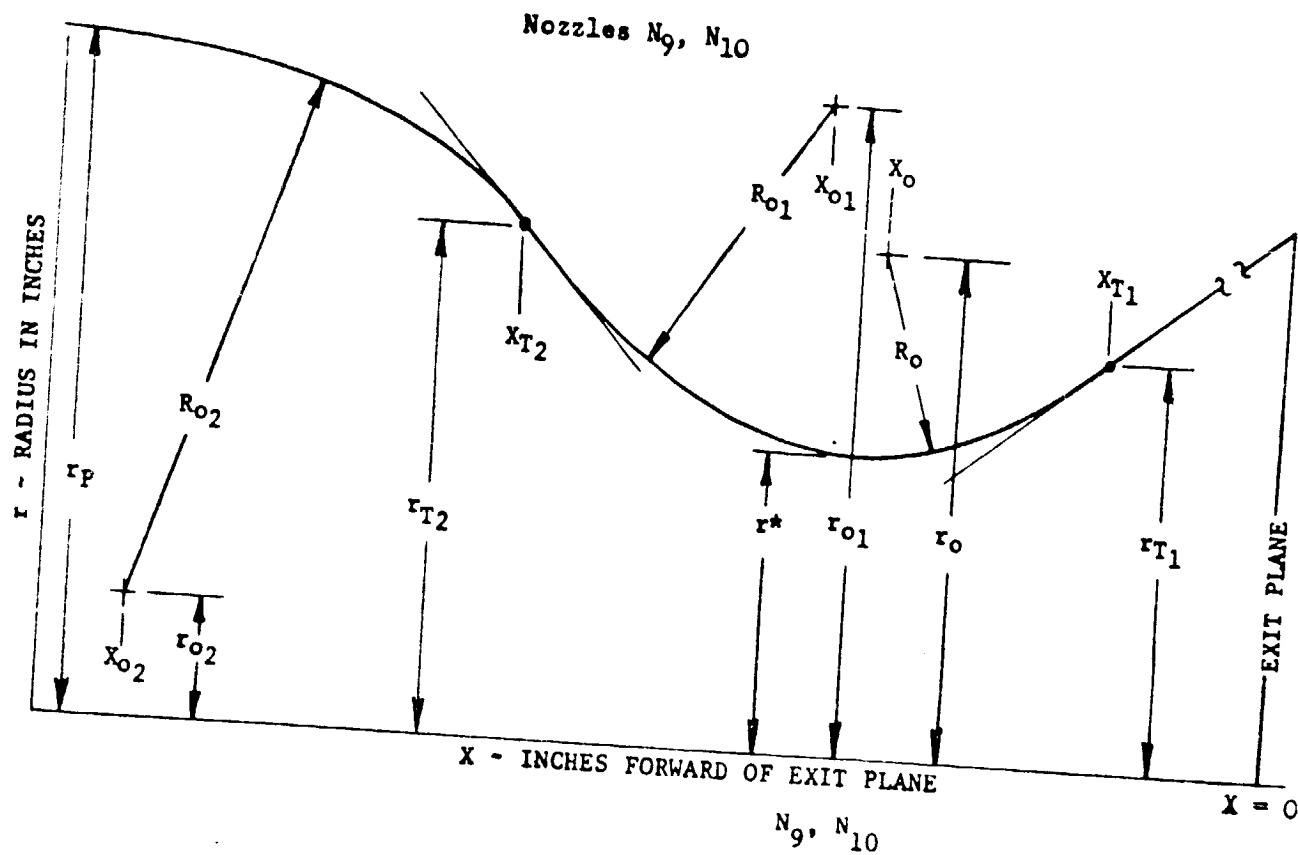


Figure 4.g. - 2A Orbiter, Nozzle.

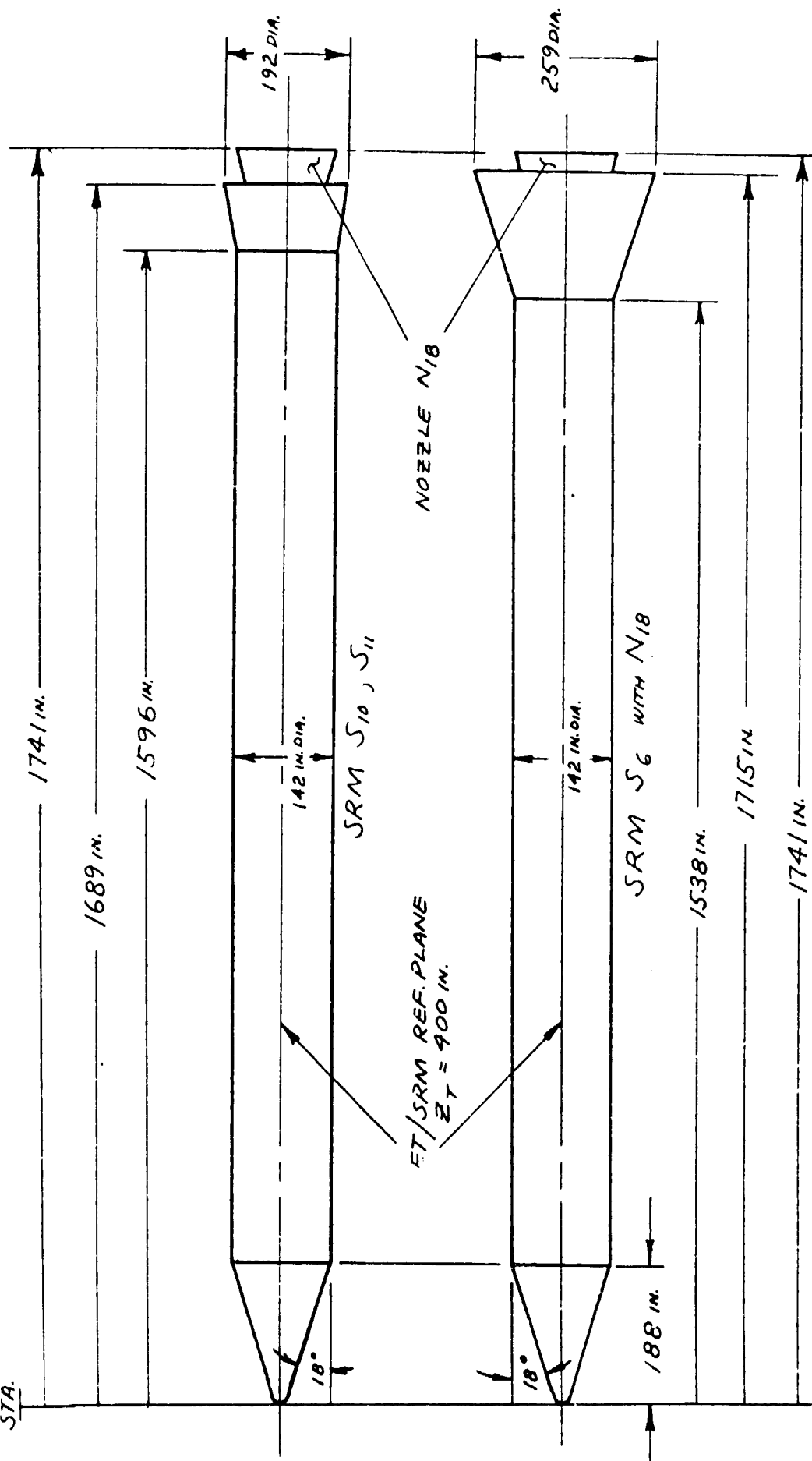


$X_{T1}$	2.0192
$r_{T1}$	0.2931
$R_0$	0.2003
$X_0$	2.1178
$r_0$	0.4675
$R_{01}$	0.2003
$X_{01}$	2.1178
$r_{01}$	0.4675
$r^*$	0.2672
$X_{T2}$	2.2239
$r_{T2}$	0.2977
$X_{02}$	2.4231
$r_{02}$	-0.0212
$R_{02}$	0.3759
$r_P$	0.3547

DESIGN INFORMATION FOR ORB-1-ABC NOZZLE CONTOURS  
(Mach Nos. 0.9, 1.25, 1.55, 2.0 3.0, and 3.5)

Figure 4.g. - Concluded.

$X_T = 672 \text{ IN.}$  ( $S_{11}$ )  
 $X_T = 743 \text{ IN.}$  ( $S_{10}$ )  
 $X_S = 200 \text{ IN.}$   
 STA.



STA.  
 $X_S = 200 \text{ IN.}$   
 $X_T = 743 \text{ IN.}$

Figure 5. - Solid Rocket Motor Configurations,  $S_{10}$ ,  $S_{11}$ , and  $S_6$  with  $N_{18}$ .

# EXTERNAL TANK $T_{10}$

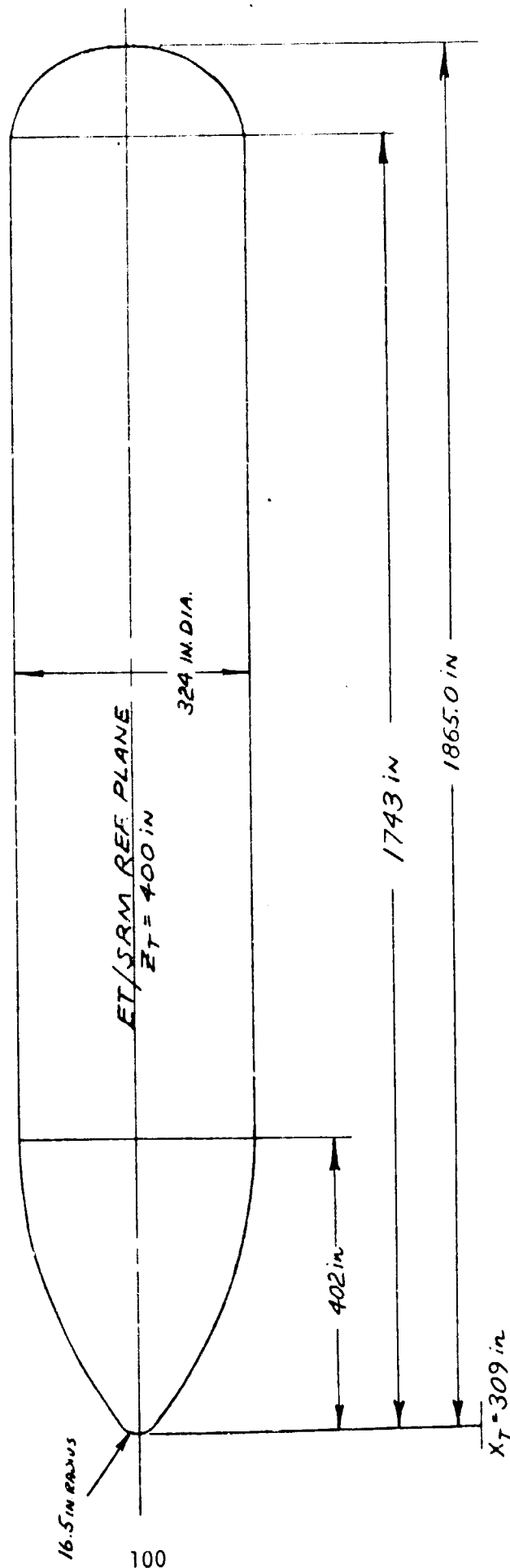


Figure 6. - External Tank Configuration,  $T_{10}$ .



Figure 7.a. - Front View of Integrated Vehicle.

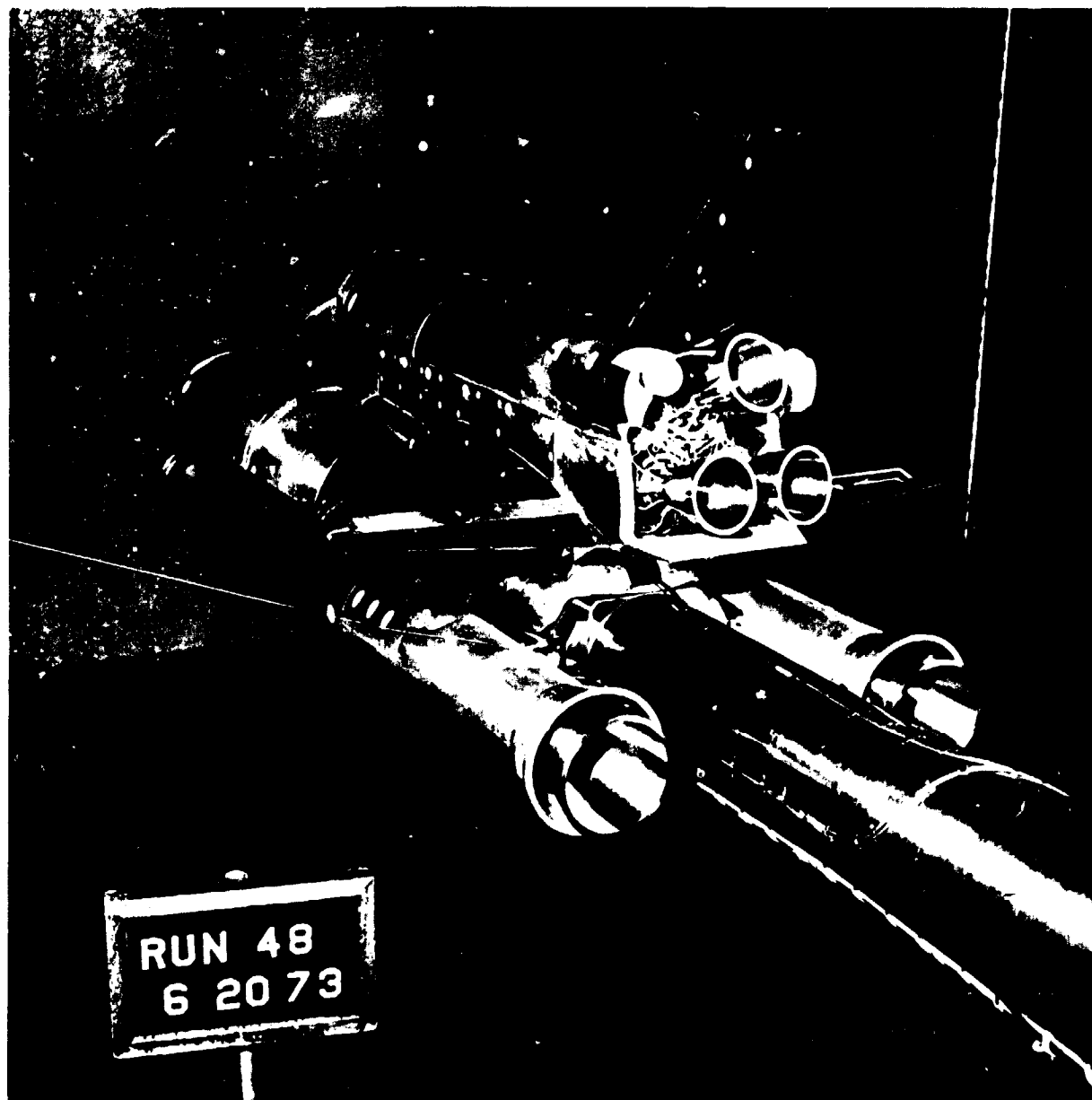
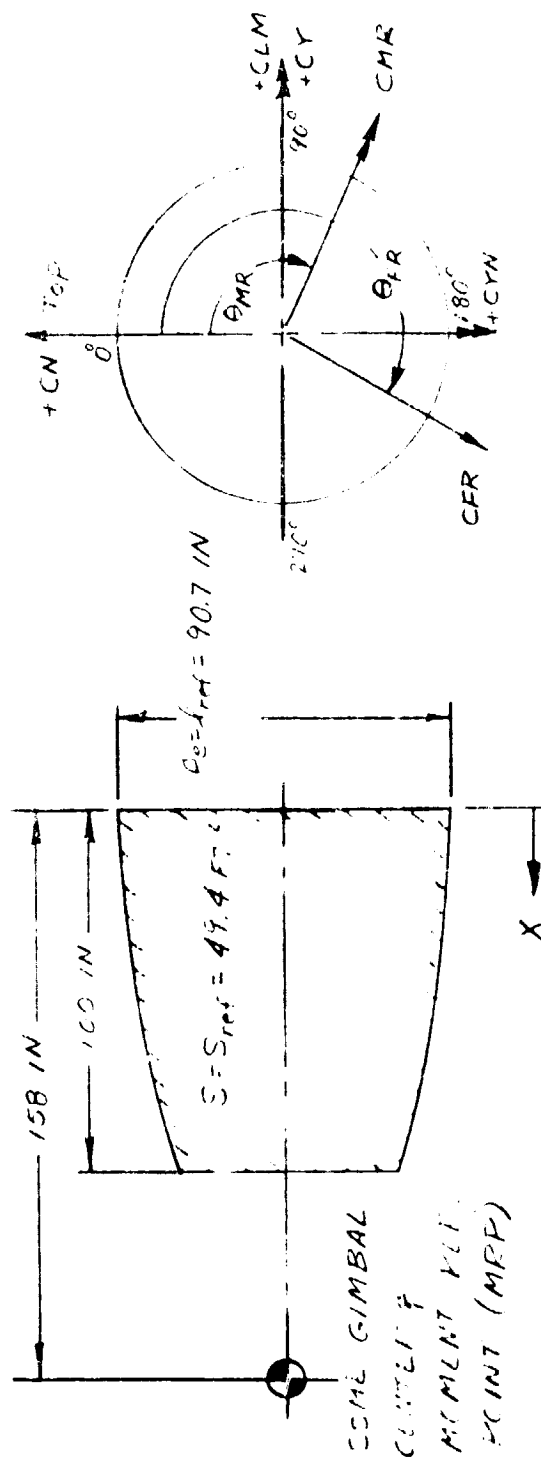


Figure 7.b. - Aft View of Integrated Vehicle with Orbiter Nozzle Gimbaled.



$$S_N = S_{throat} = 49.4 \text{ FT}^2$$

$$d_{throat} = 10.0 \text{ IN}$$

$$C_{FR} = \sqrt{CN^2 + CY^2}$$

$$C_{MR} = \sqrt{CLM^2 + CYN^2}$$

$$CN' = \frac{\partial CN}{\partial (X/d_e)} \quad CLM' = \frac{\partial CLM}{\partial (X/d_e)}$$

$$CY' = \frac{\partial CY}{\partial (X/d_e)} \quad CYN' = \frac{\partial CYN}{\partial (X/d_e)}$$

Figure 8. SSME Nozzle Loads Nomenclature.

DATA FIGURES

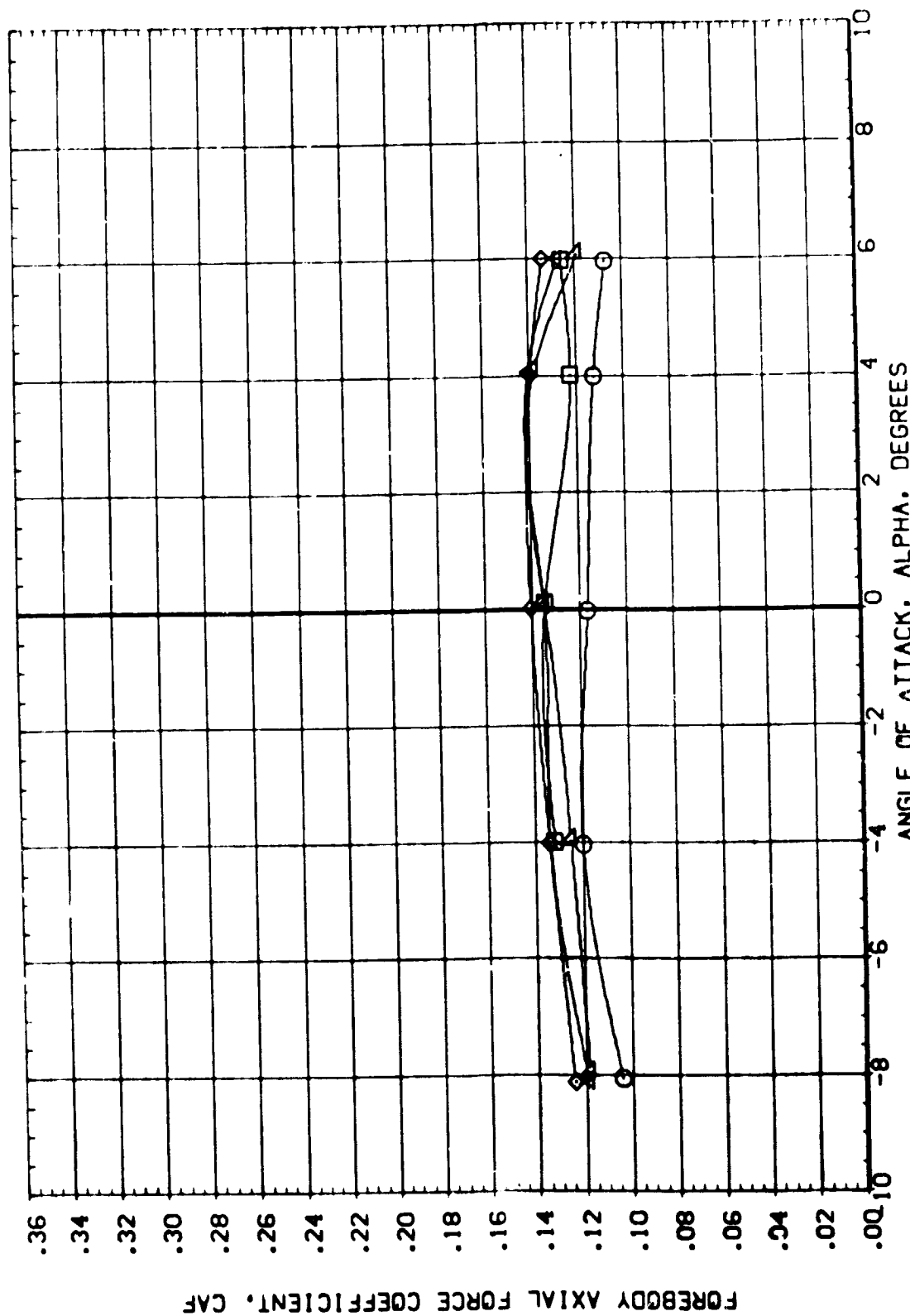
VOLUME 1

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(B)F0901	CALSPAN T14-013	.000	.000	70.500	2.020	LREF 1328.0002 INCHES
(B)F0921	CALSPAN T14-013	.000	.000	48.600	2.020	BREF 1328.0002 INCHES
(B)F0931	CALSPAN T14-013	.000	.000	28.310	2.400	YMRP 953.0001 INCHES
(B)F0941	CALSPAN T14-013	.000	.000	28.310	2.400	ZMRP 400.0003 INCHES
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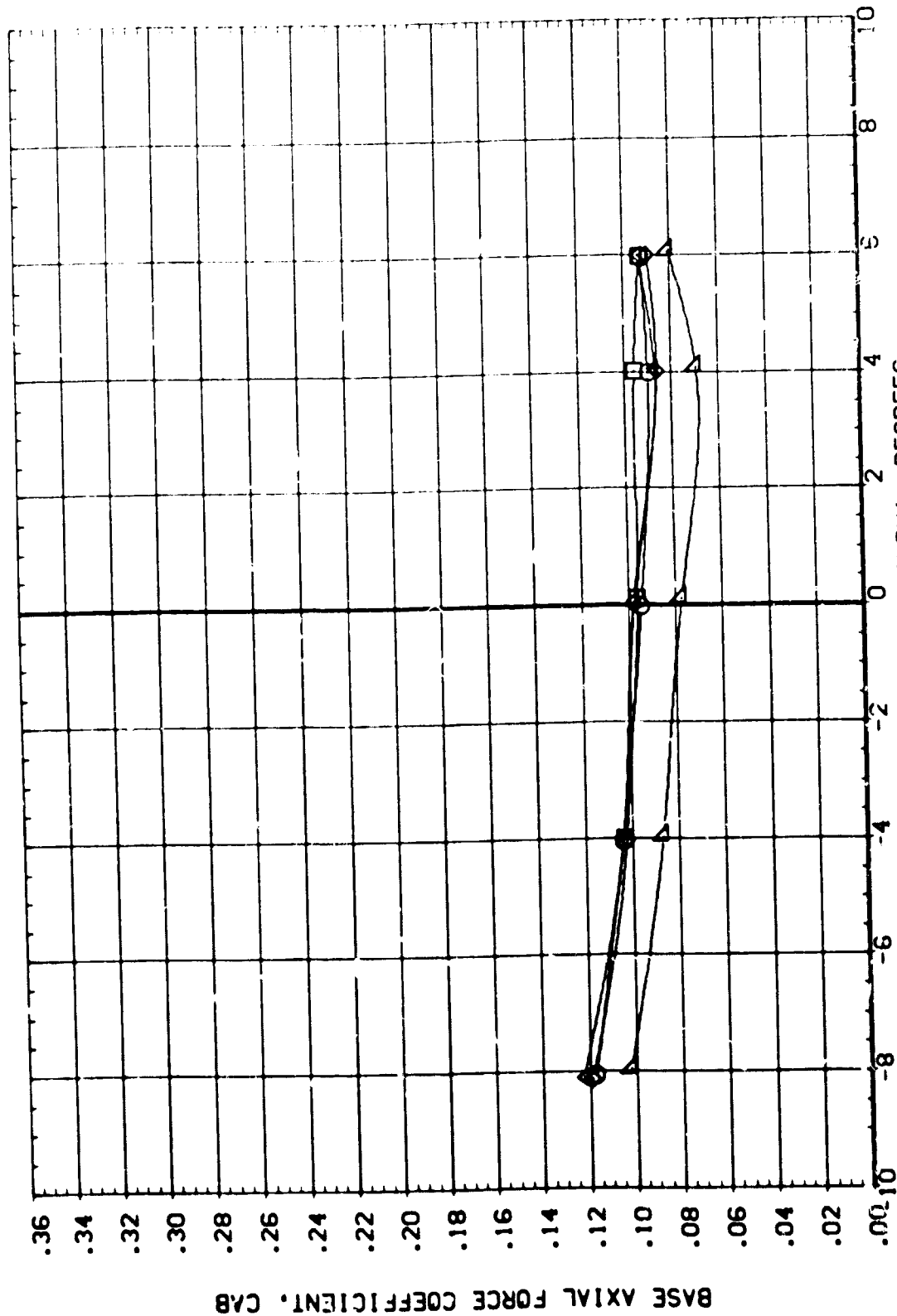


PLUME SIZE EFFECTS ON LONGITUDINAL CHARACTERISTICS

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(BLF 090)	CALSPAN T14-053	.000	.000	70.500	2.020	LREF 1328.0002 INCHES
(BLF 092)	CALSPAN T14-053	.000	.000	48.600	2.020	BREF 1328.0002 INCHES
(BLF 093)	CALSPAN T14-053	.000	.000	28.310	2.400	XMRP 953.0001 INCHES
(BLF 094)	CALSPAN T14-053	.000	.000	28.310	2.400	YMRP 400.0000 INCHES
						ZMRP 400.0000 INCHES
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1A36  
 1A36  
 OPR = 2.5 x NOM  
 OPR = 1.72 x NOM  
 SWPPA = 1.2 x NOM

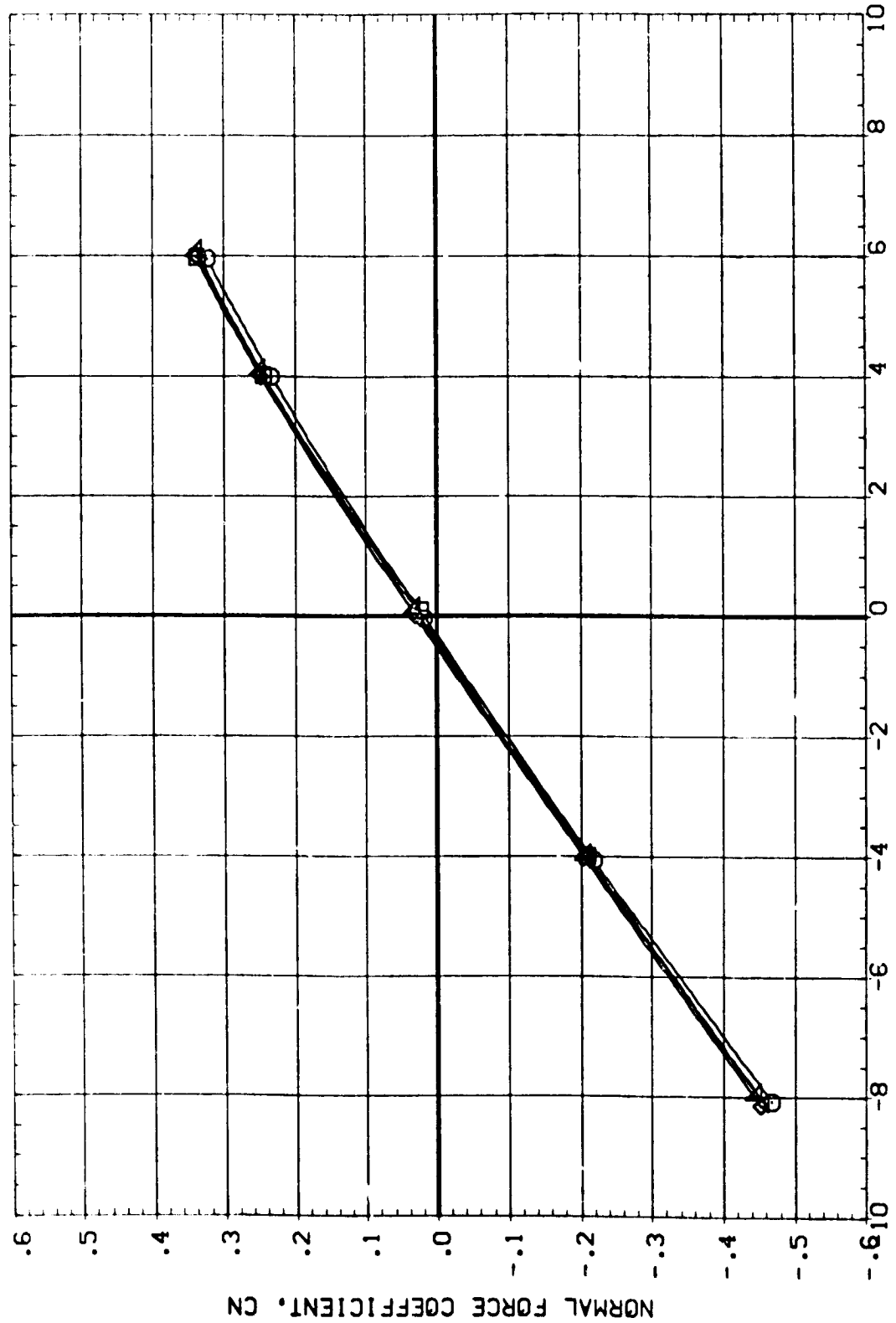


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(B)F032)	CALSPAN T14-053	.000	.000	48.600	2.020	BREF 1328.0002 INCHES
(B)F033)	CALSPAN T14-053	.000	.000	28.310	2.400	XMRP 953.0001 INCHES
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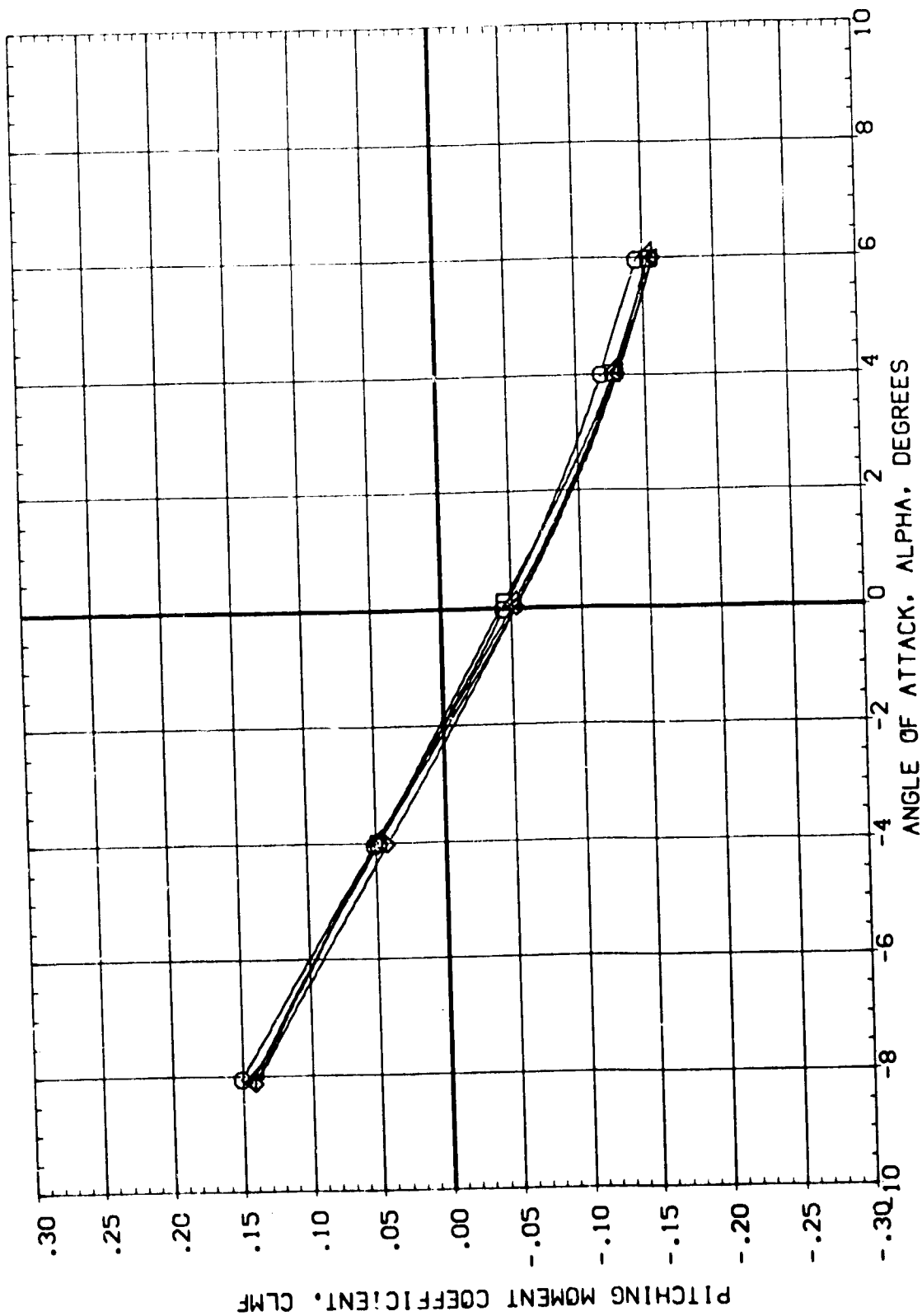
PLUME SIZE EFFECTS ON LONGITUDINAL CHARACTERISTICS

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(B)F0931	CALSPAN T14-053	.000	.000	28.310	2.400	YMRP 953.0001 INCHES
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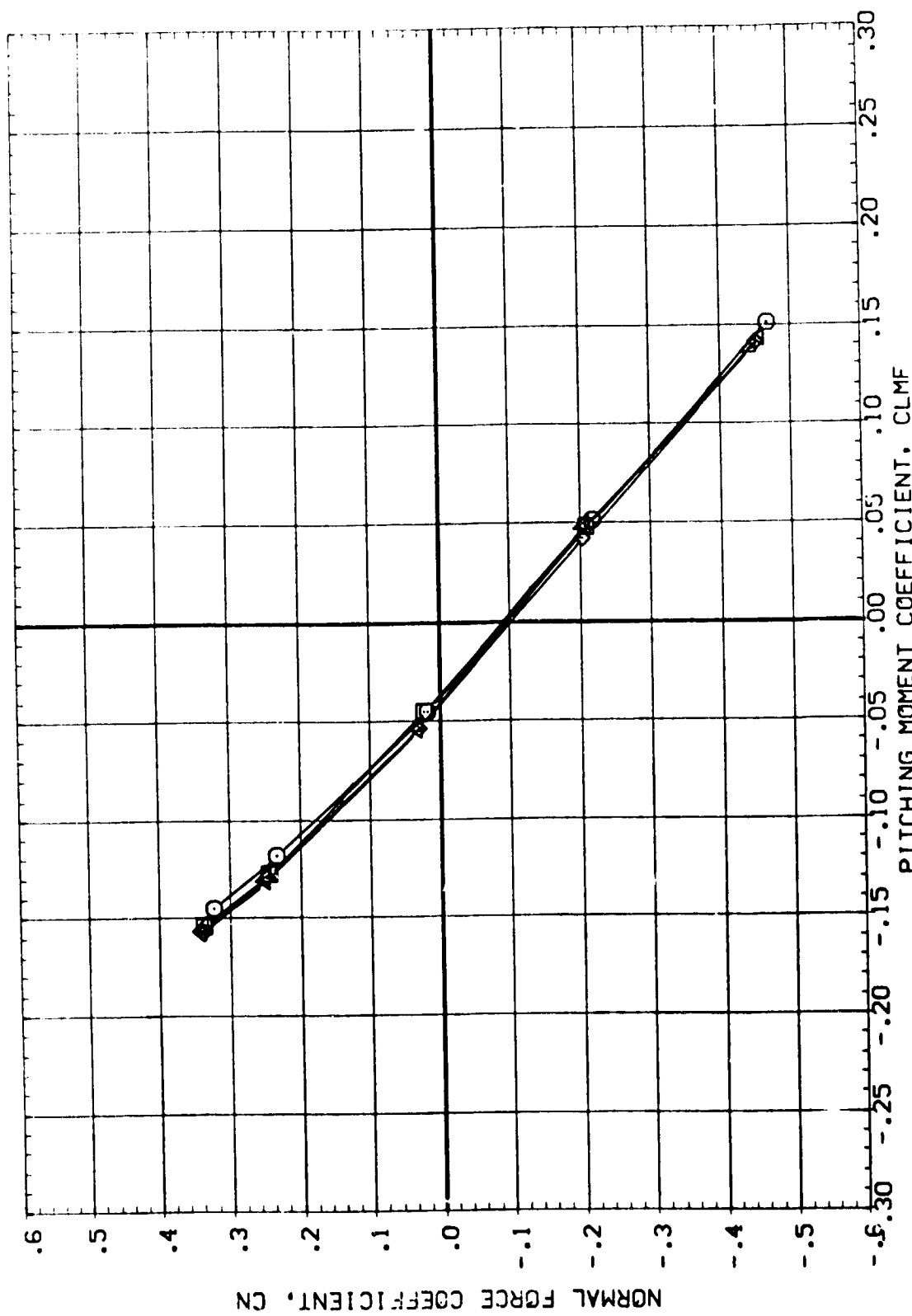


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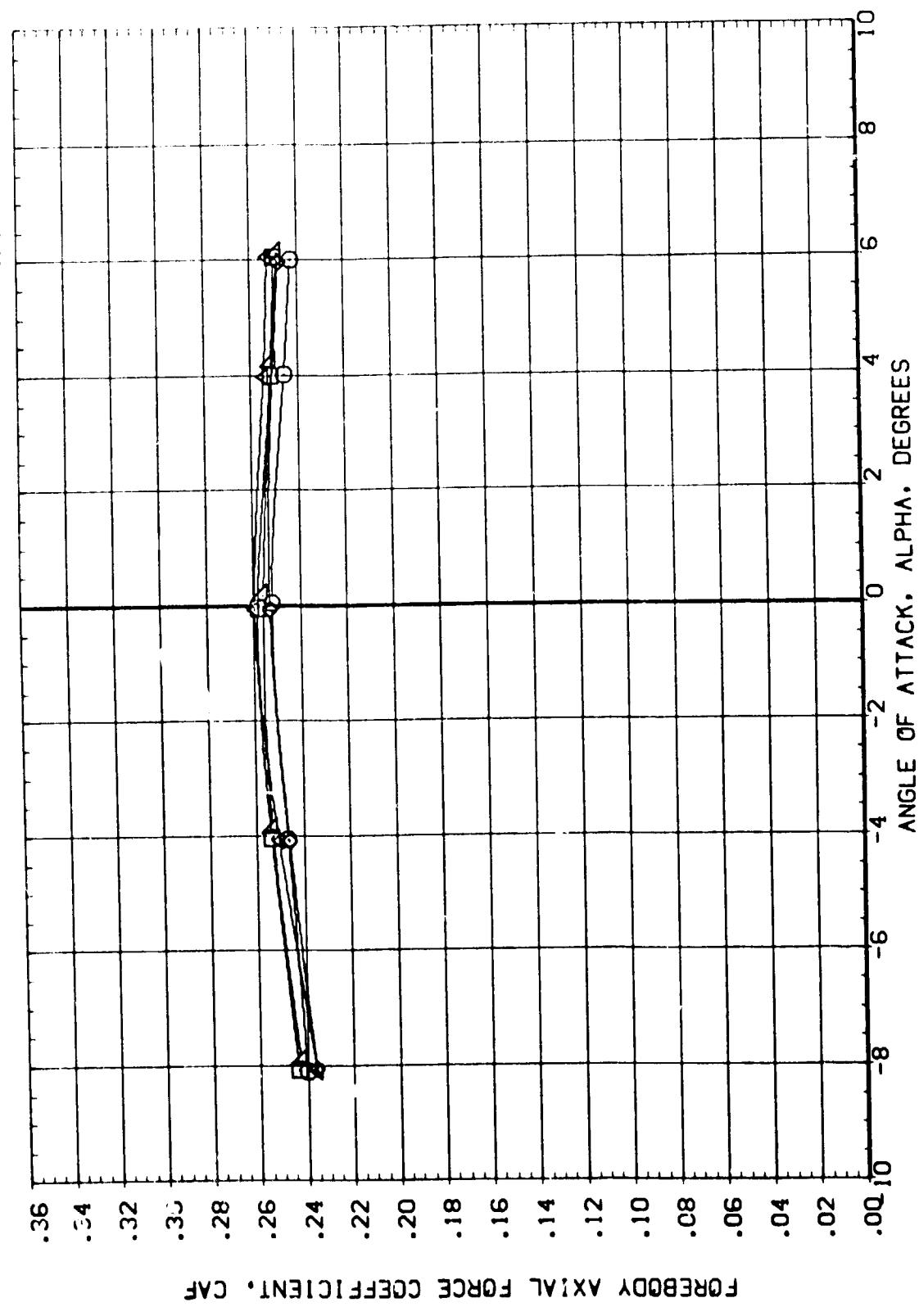
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PLUME SIZE EFFECTS ON LONGITUDINAL CHARACTERISTICS

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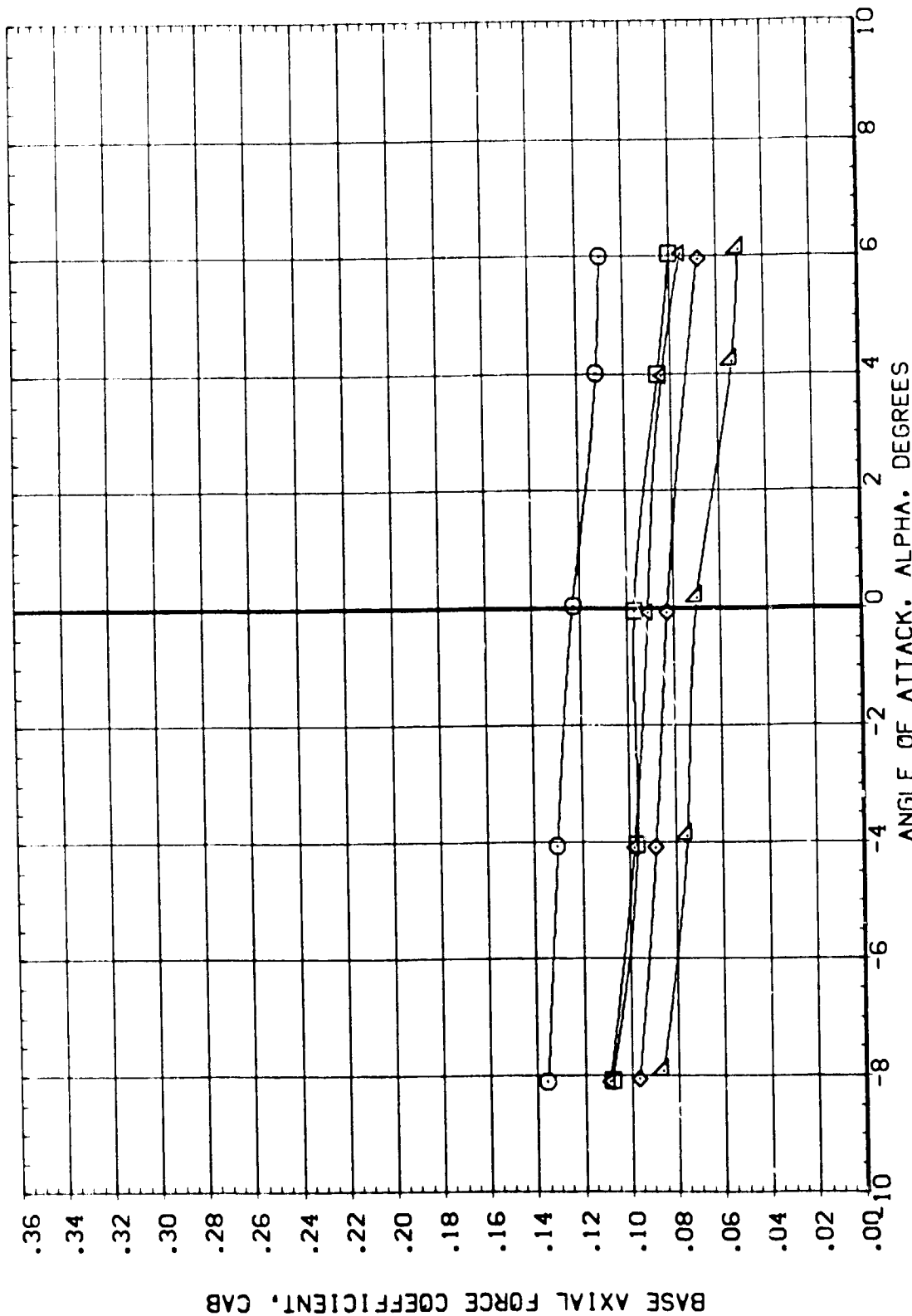


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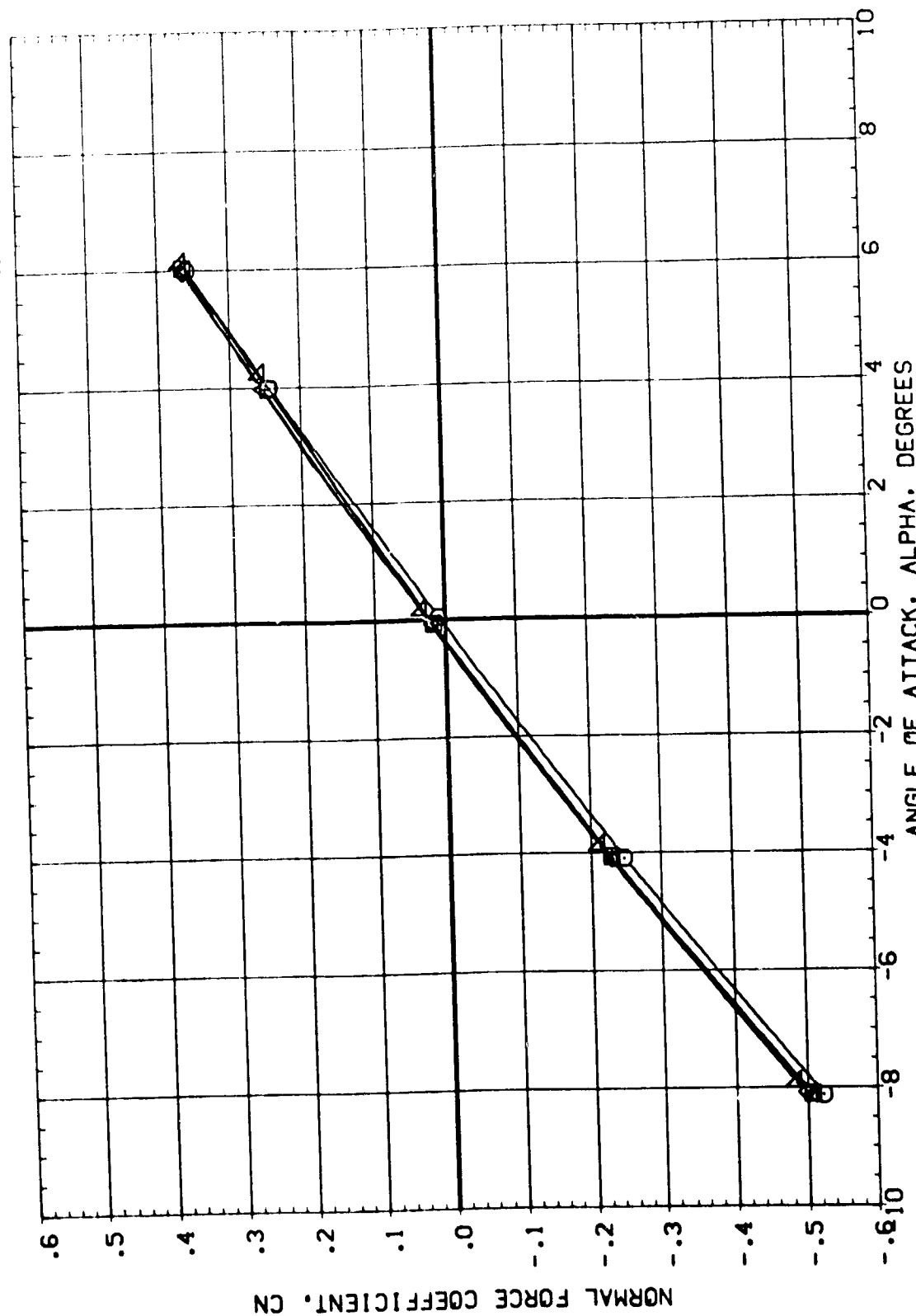
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(B.F.085)	CALSPAN T14-053	.000	.000	66.700	2.330	BREF 1328.0002 INCHES
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PLUME SIZE EFFECTS ON LONGITUDINAL CHARACTERISTICS

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(B.F.085)	CALSPAN T14-053	.000	.000	66.700	2.330	BREF 1328.0002 INCHES
(B.F.086)	CALSPAN T14-053	.000	.000	36.200	2.330	YMRP 953.0001 INCHES
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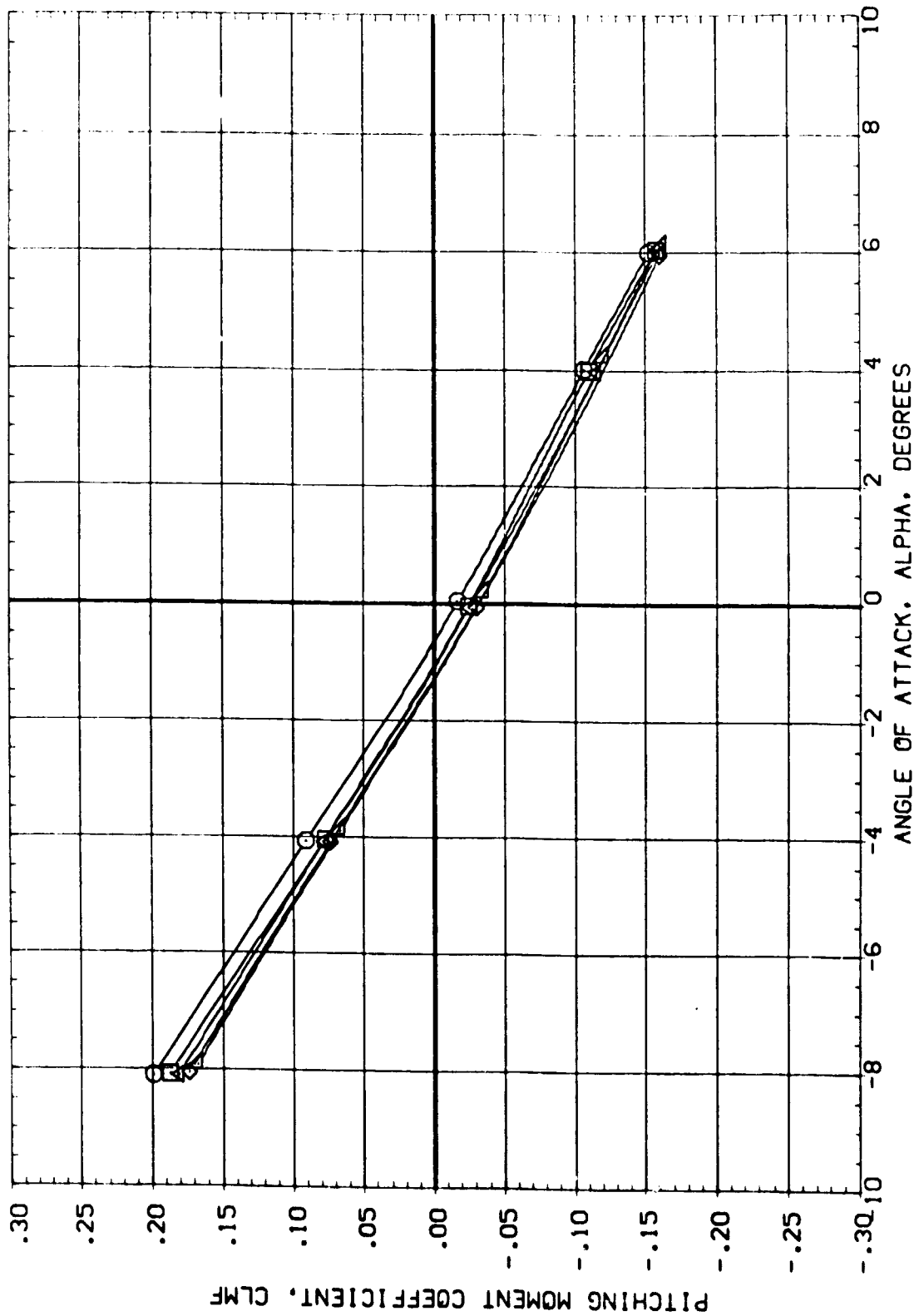
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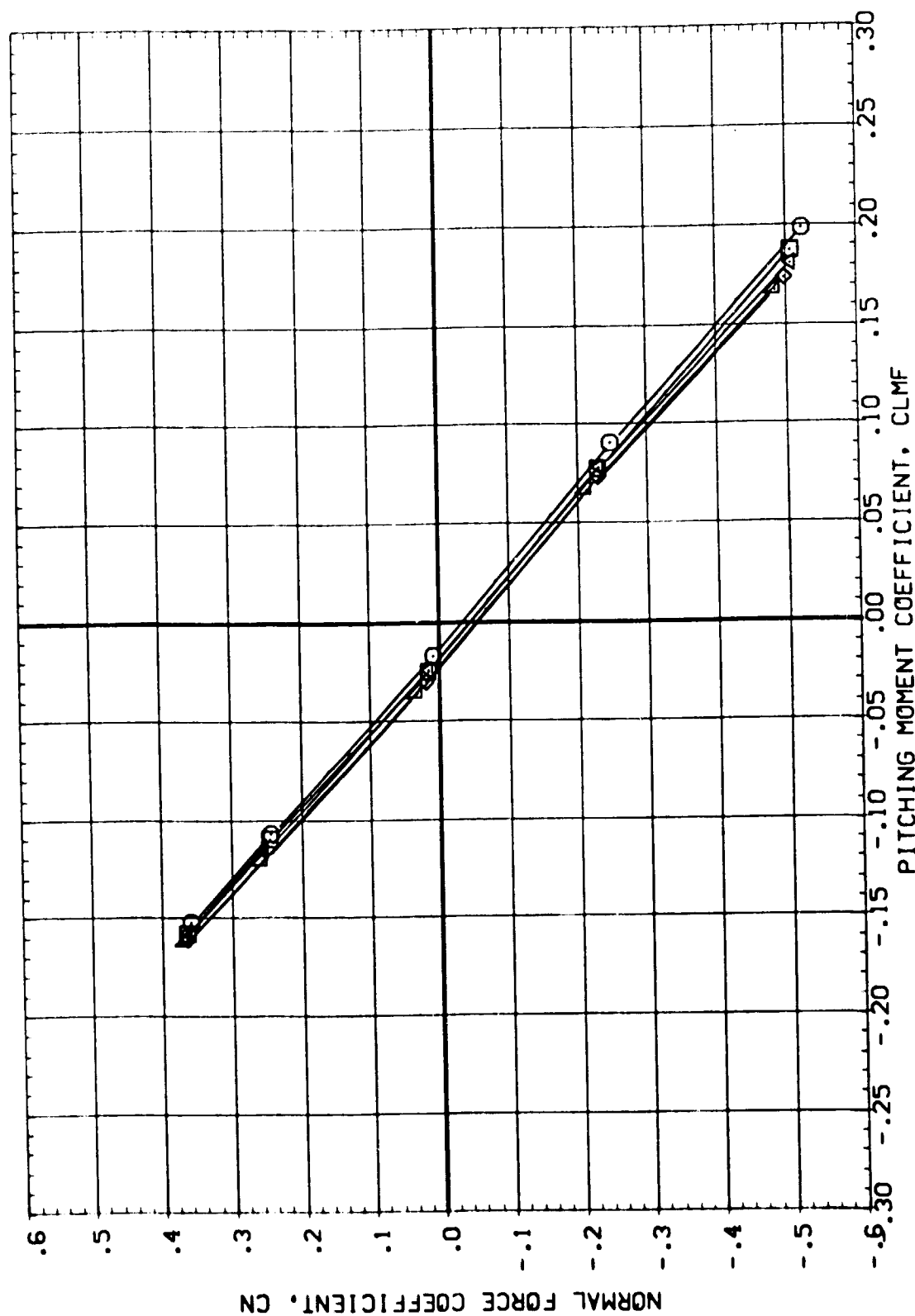
PLUME SIZE EFFECTS ON LONGITUDINAL CHARACTERISTICS

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PAGE

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B.F.0861	CALSPAN T14-053	.000	.000	36.200	2.330	XMRP 953.0001 INCHES
B.F.0871	CALSPAN T14-053	.000	.000	36.200	2.330	YMRP 400.0000 INCHES
B.F.0881	CALSPAN T14-053	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
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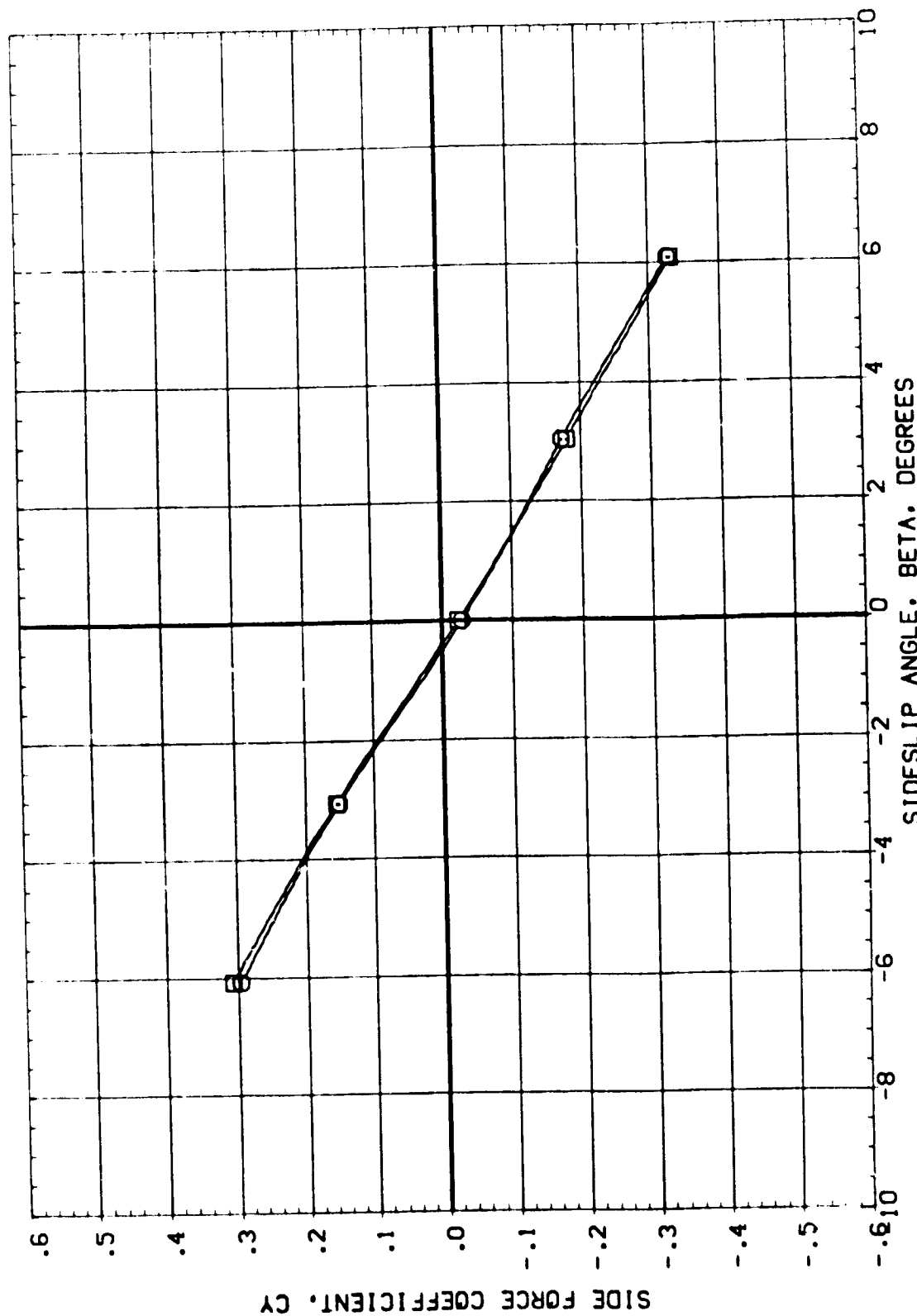


PLUME SIZE EFFECTS ON LONGITUDINAL CHARACTERISTICS

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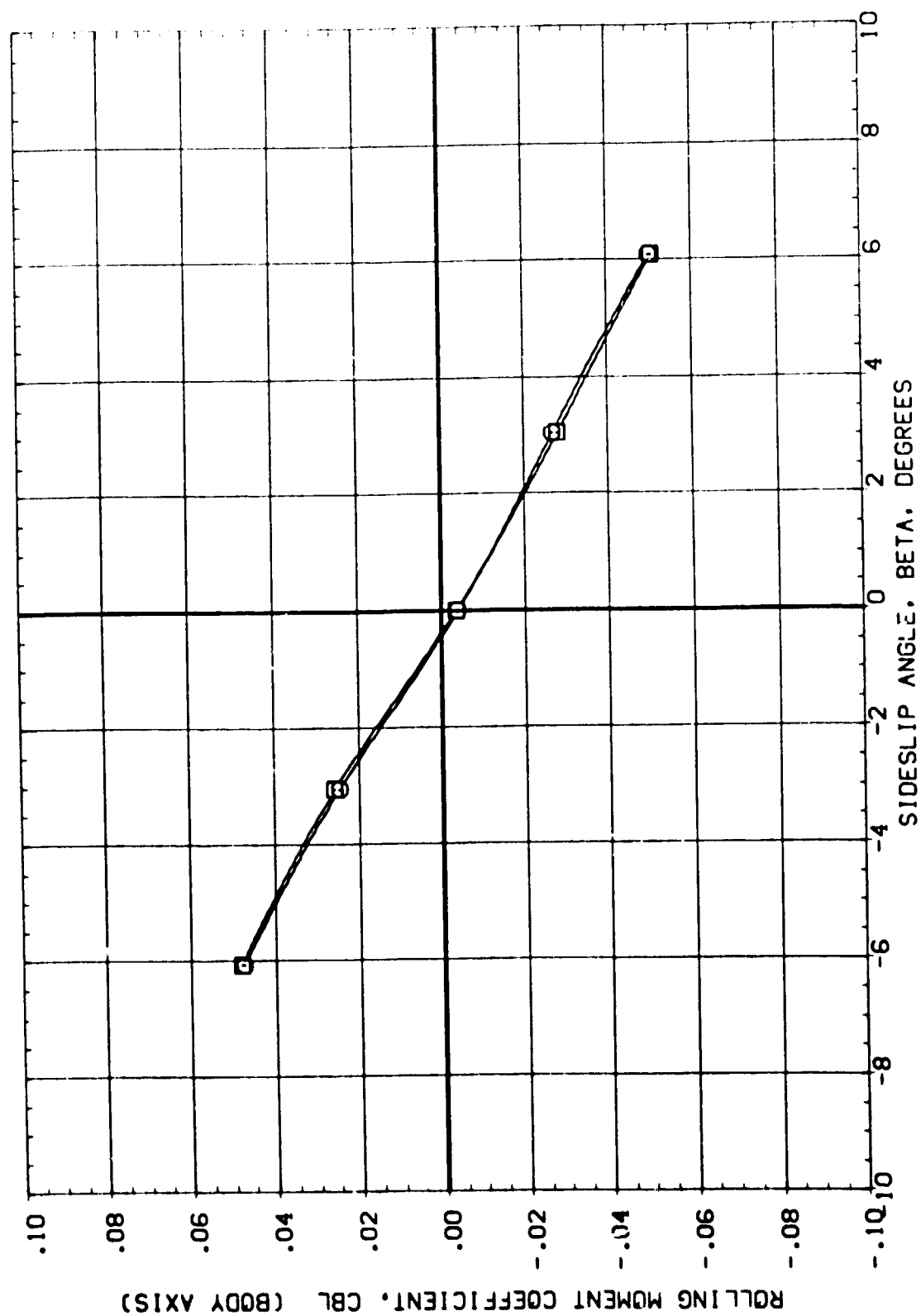
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PLUME SIZE EFFECTS ON LATERAL CHARACTERISTICS

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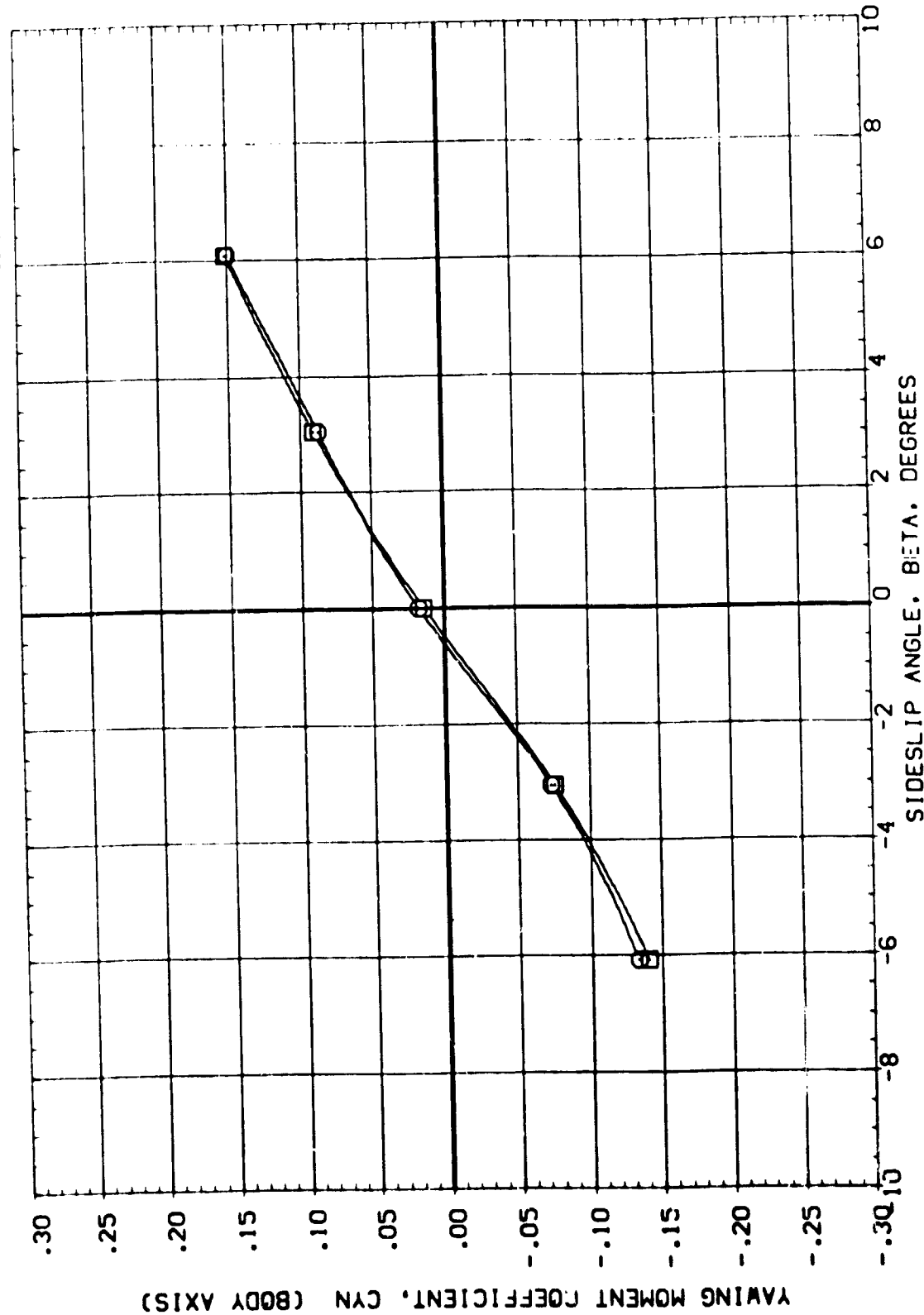


PLUME SIZE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = .91



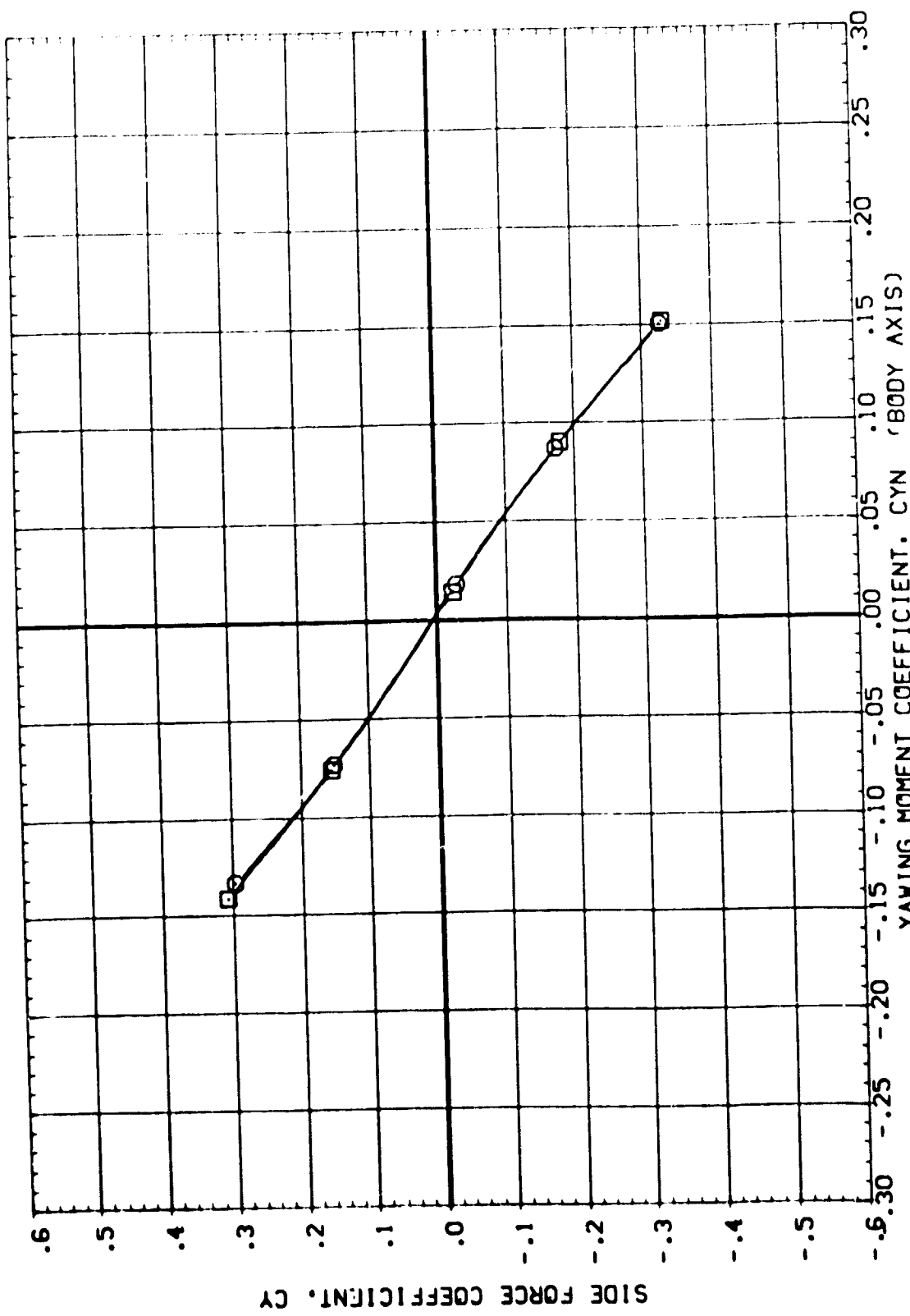
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PLUME SIZE EFFECTS ON LATERAL CHARACTERISTICS

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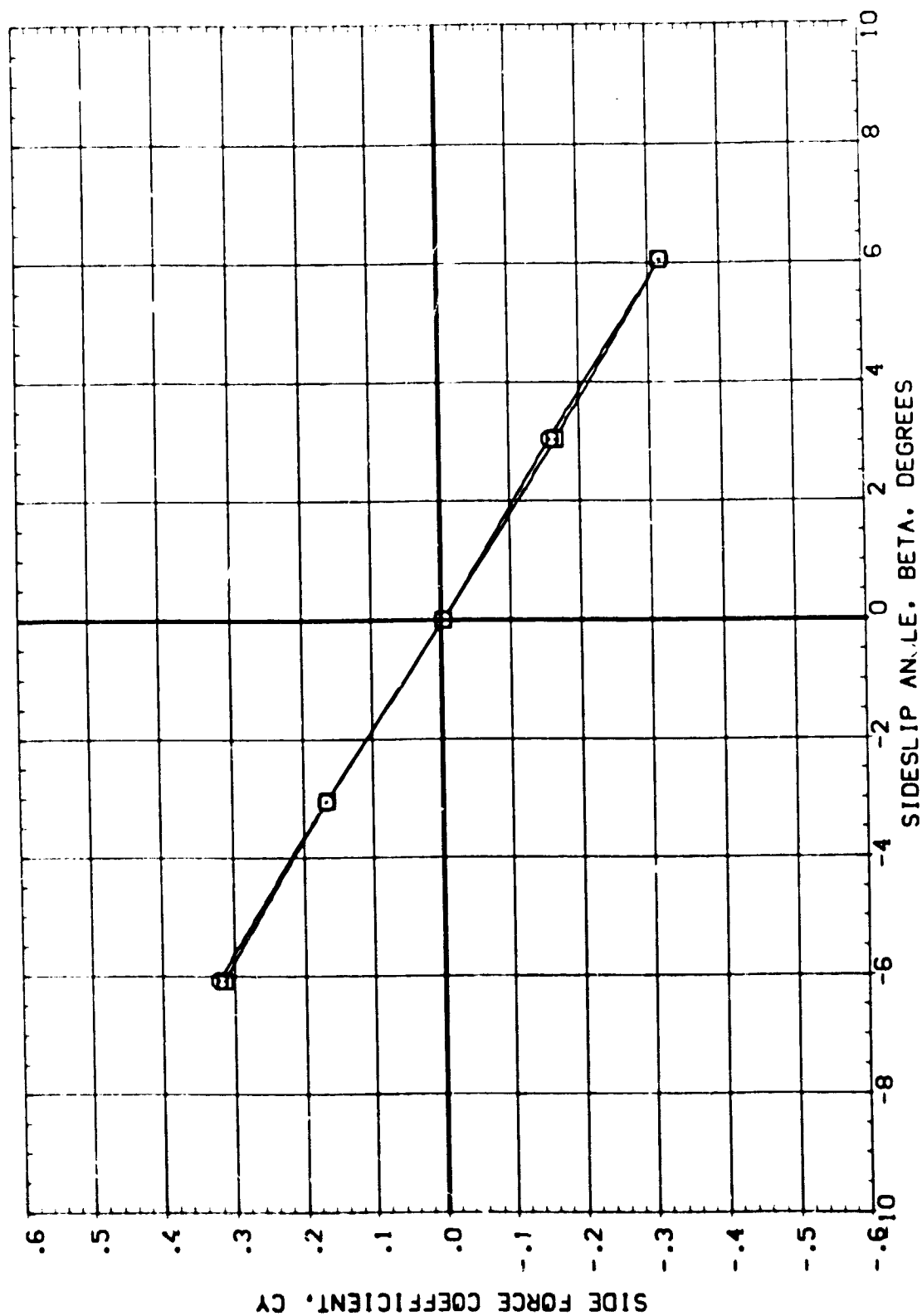


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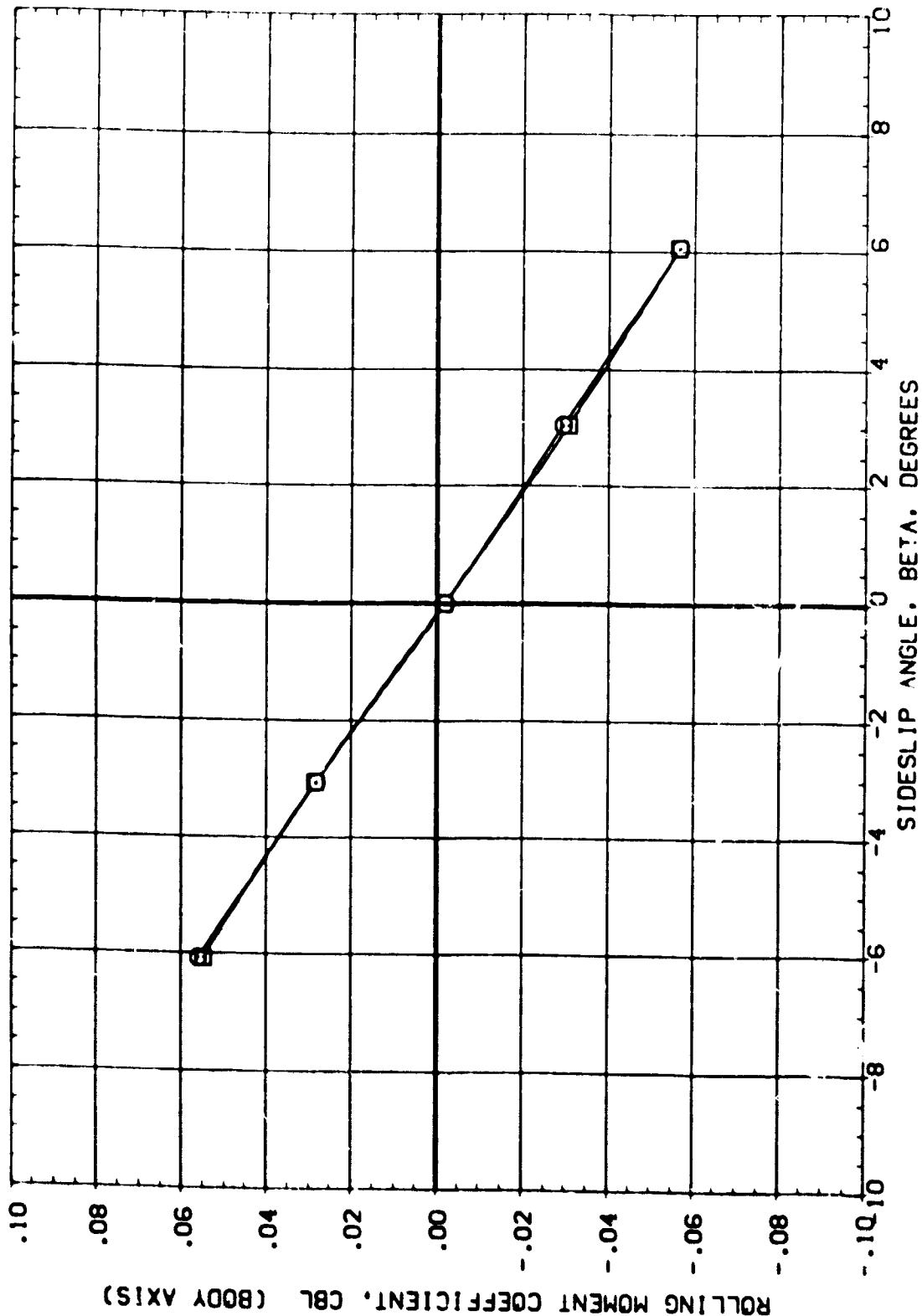
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# PLUME SIZE EFFECTS ON LATERAL CHARACTERISTICS

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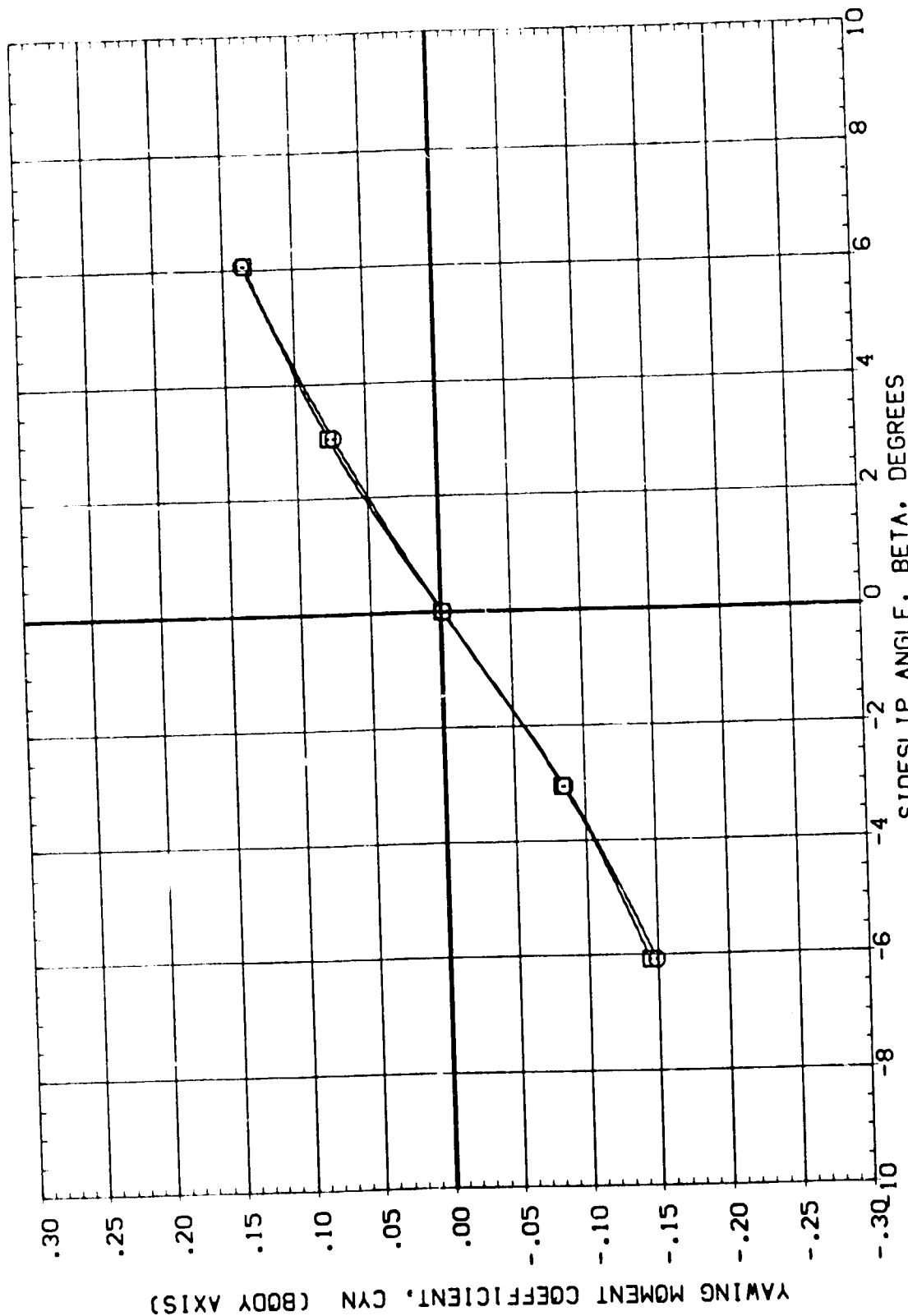


PLUME SIZE EFFECTS ON LATERAL CHARACTERISTICS





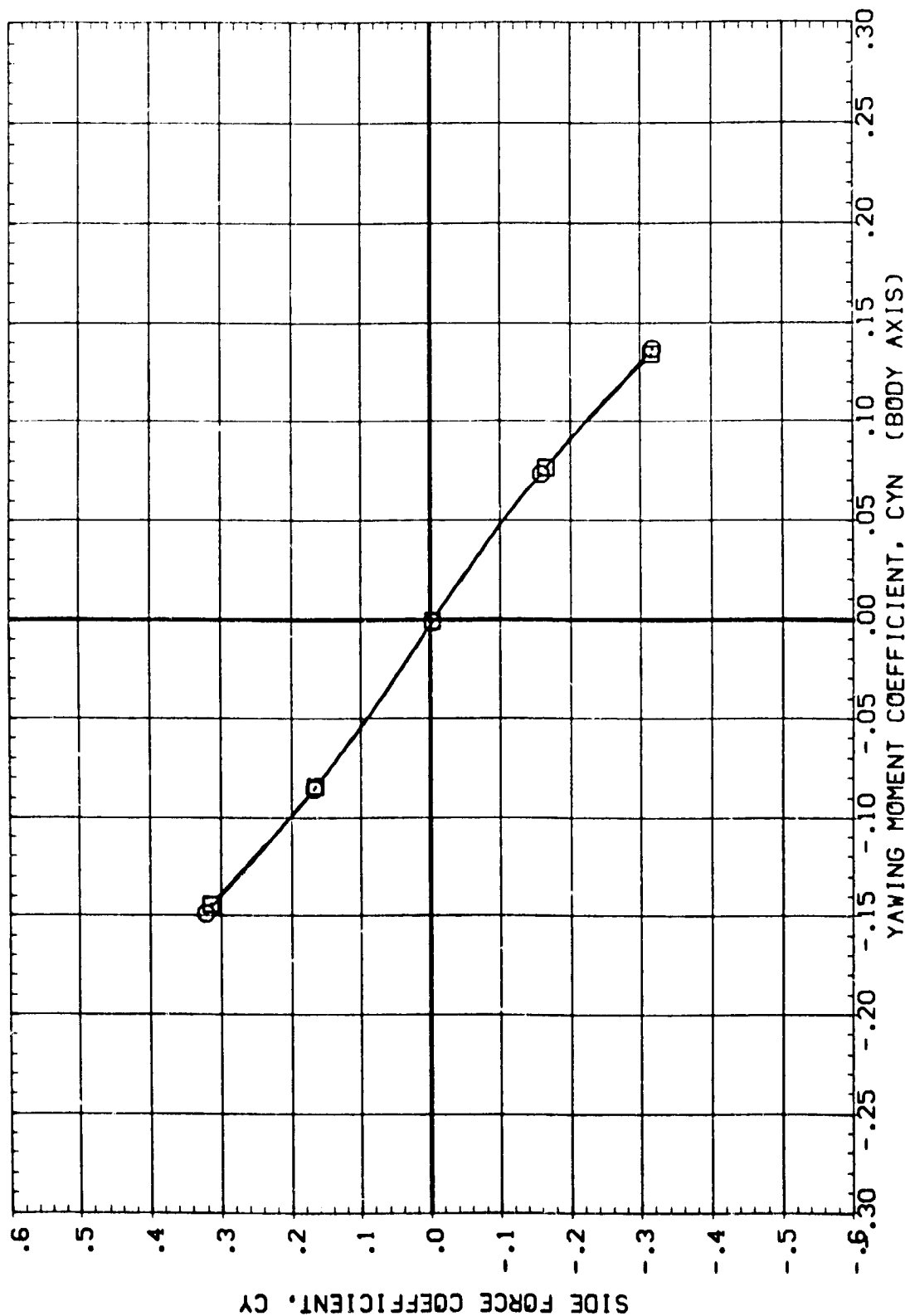
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PLUME SIZE EFFECTS ON LATERAL CHARACTERISTICS

(A) MACH = 1.21

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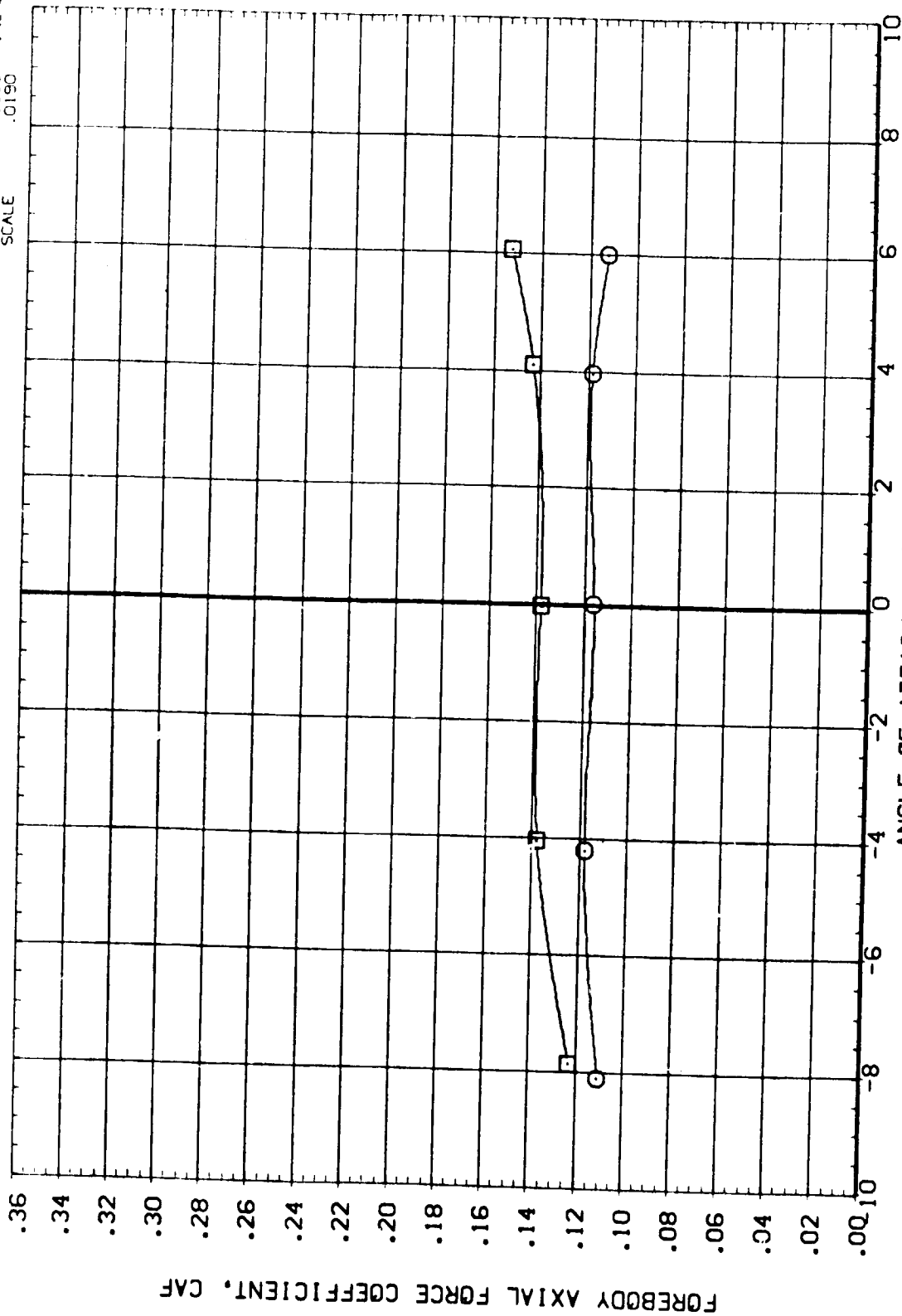


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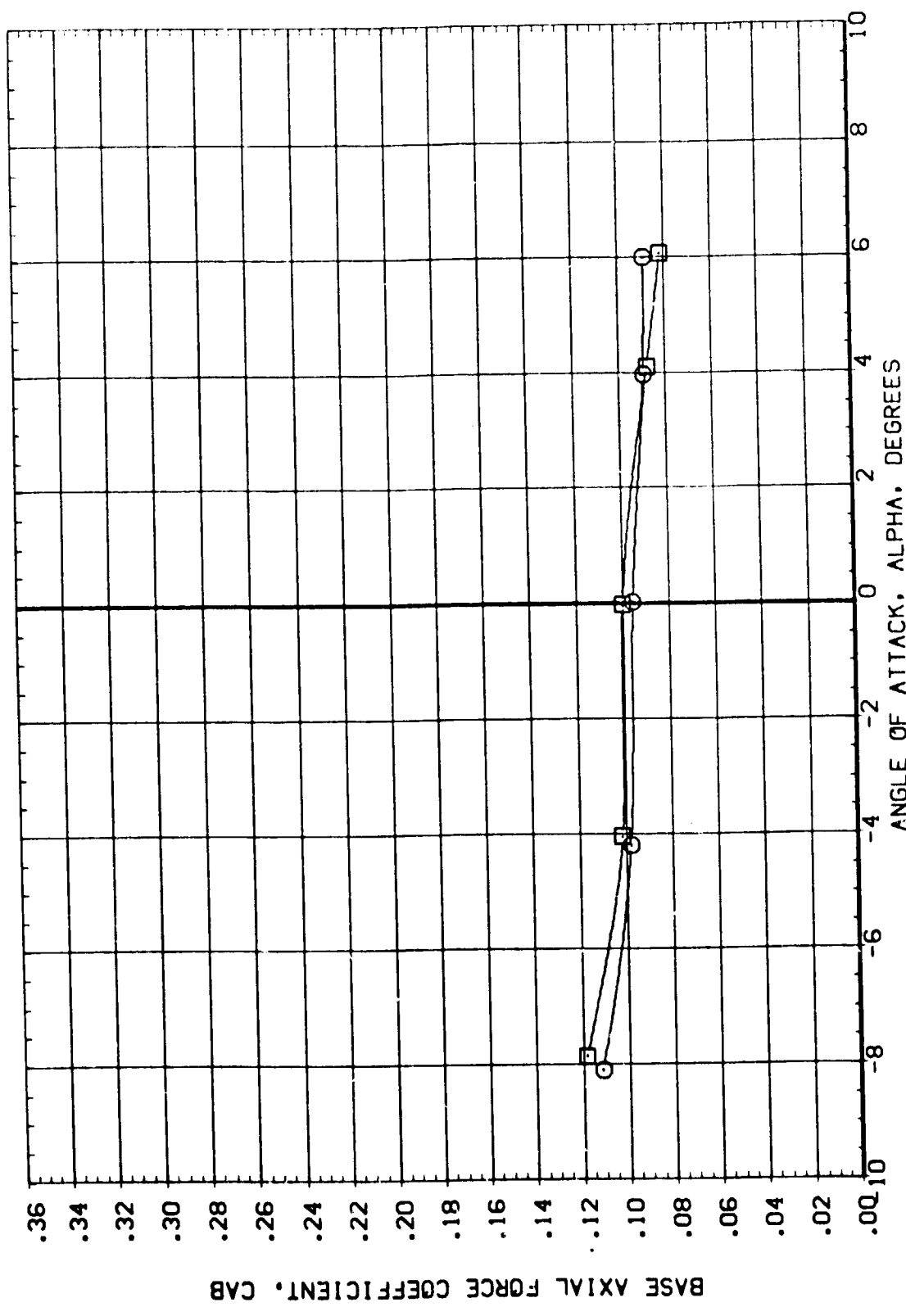
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PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

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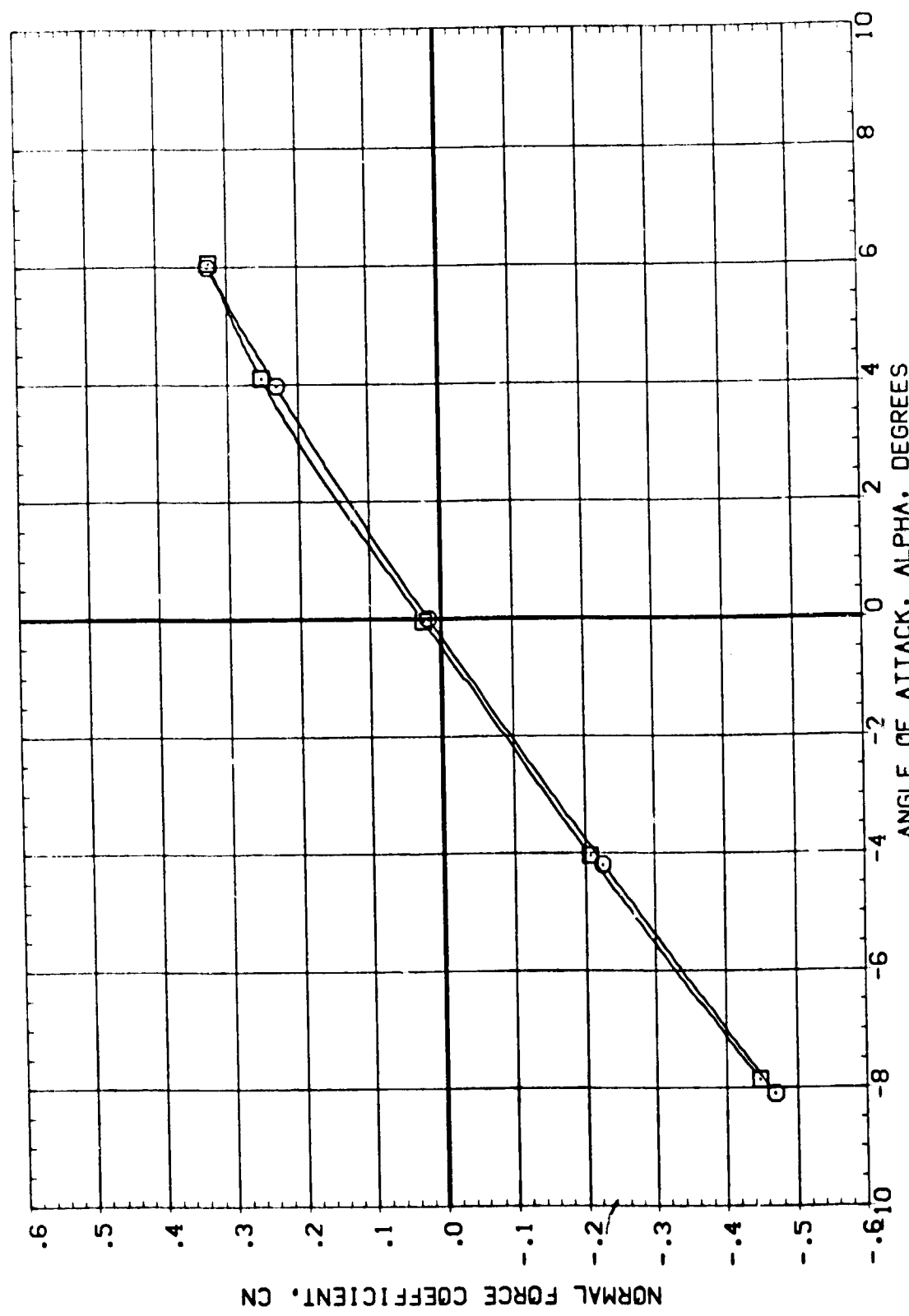
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11111

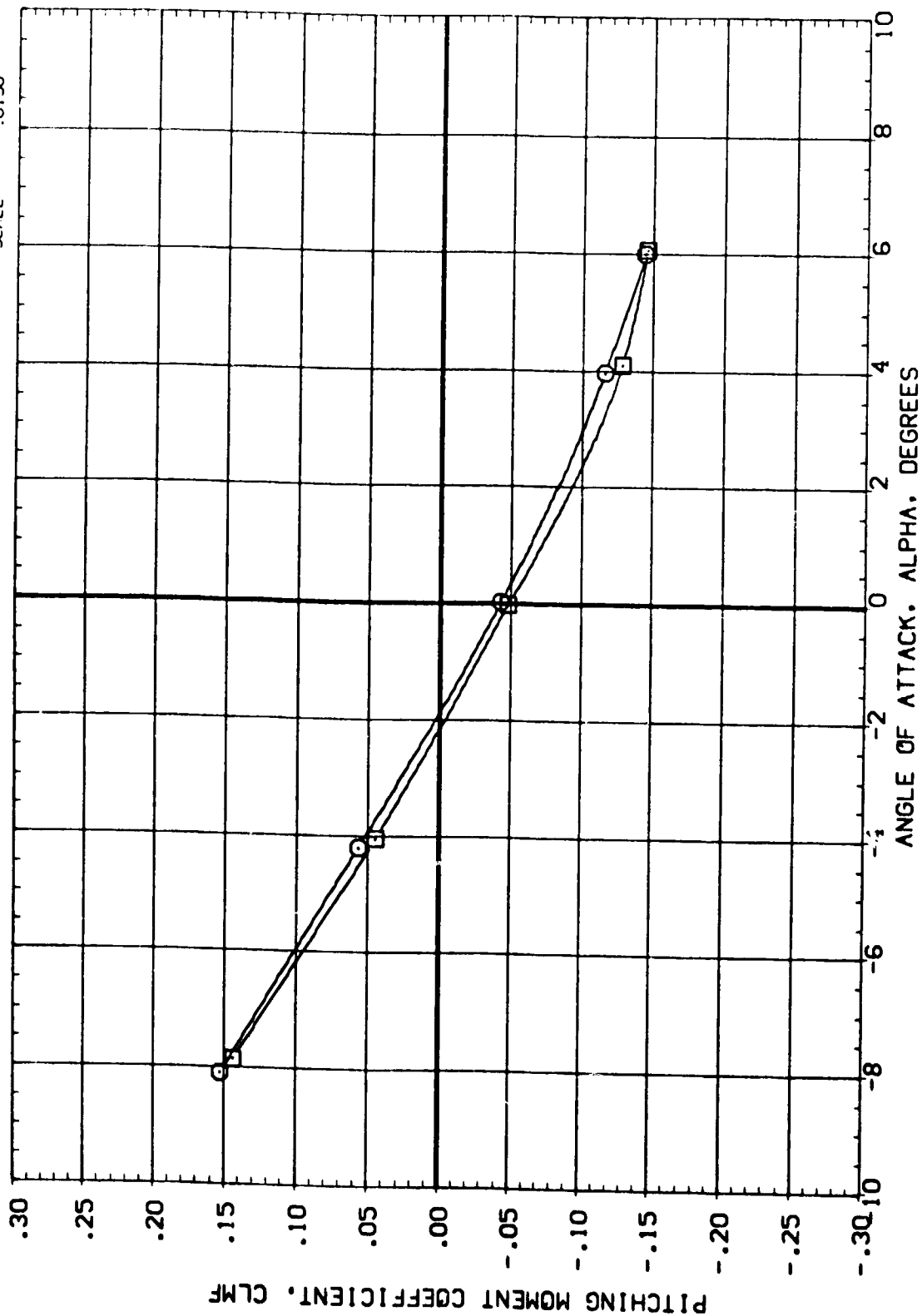
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							ZMRP 400.0000 INCHES
							SCALE 400.0000 INCHES



PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUF100)	CALSPAN T14-053	.000	10.000	28.310	2.020	SREF 2690.0004 FT. SQ
(BUF102)	CALSPAN T14-053	.000	10.000			LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						XMRP 953.0001 INCHES
						YMRP .0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190

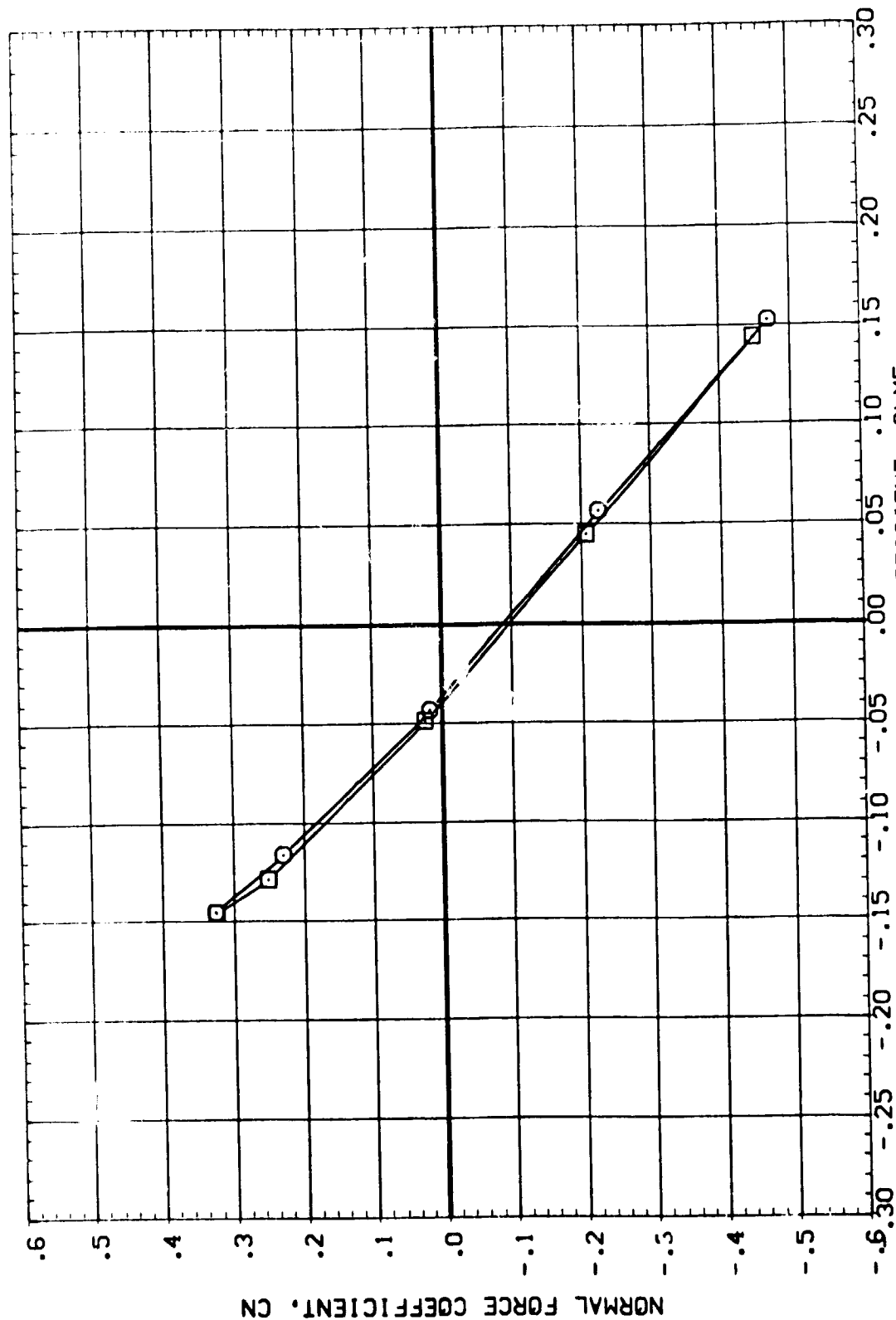


PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUF100)	CALSPAN T14-053	.000	10.000	28.310	2.020	SREF 2690.0004 FT. SC
(BUF102)	CALSPAN T14-053	.000	10.000	28.310	2.020	LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						XMRP 953.0001 INCHES
						YMRP 1328.0002 INCHES
						ZMRP 400.0003 INCHES
						SCALE .0190



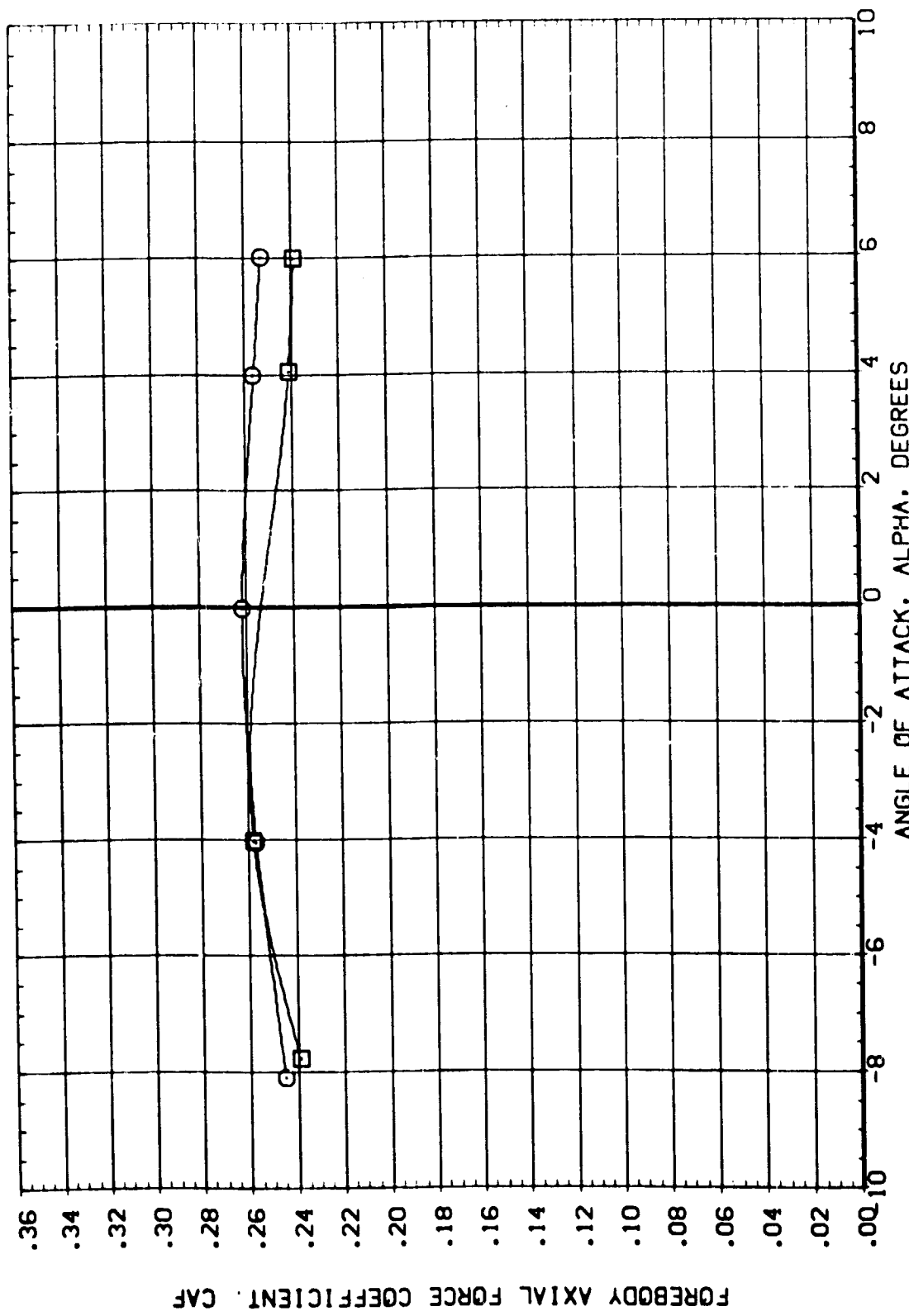
PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

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DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA		RUDDER		OPR		SRMPR		REFERENCE INFORMATION			
(BLF095)		CALSPAN T14-053		.000		10.000		36.200		2.330		SREF 2690.0004 FT. SQ			
(BLF097)		CALSPAN T14-053		.000		10.000		36.200		2.330		LREF 1328.0002 INCHES			
												BREF 1328.0002 INCHES			
												XMRP 953.0001 INCHES			
												YMRP .0000 INCHES			
												ZMRP 400.0000 INCHES			
												SCALE .0190			

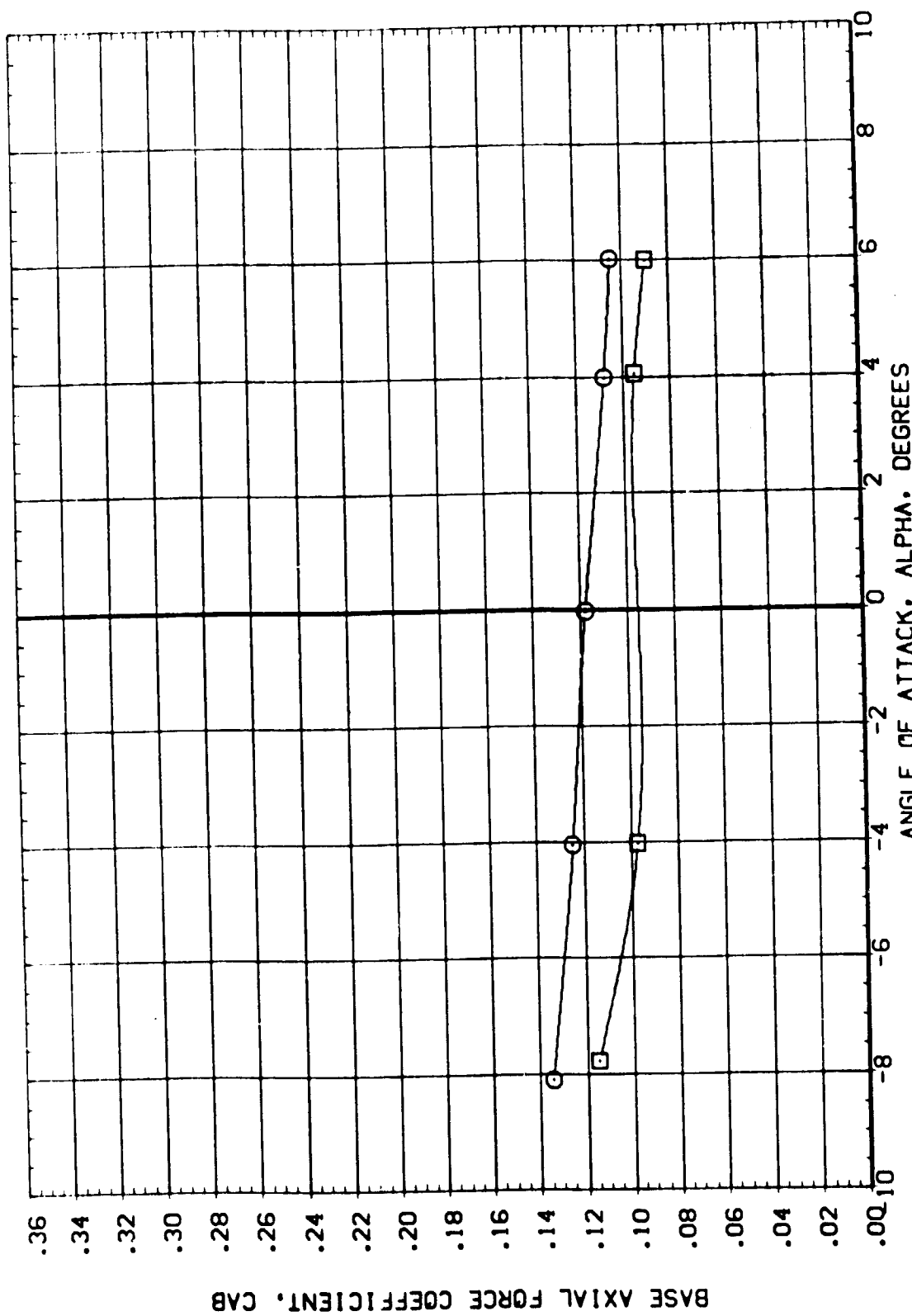


PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS





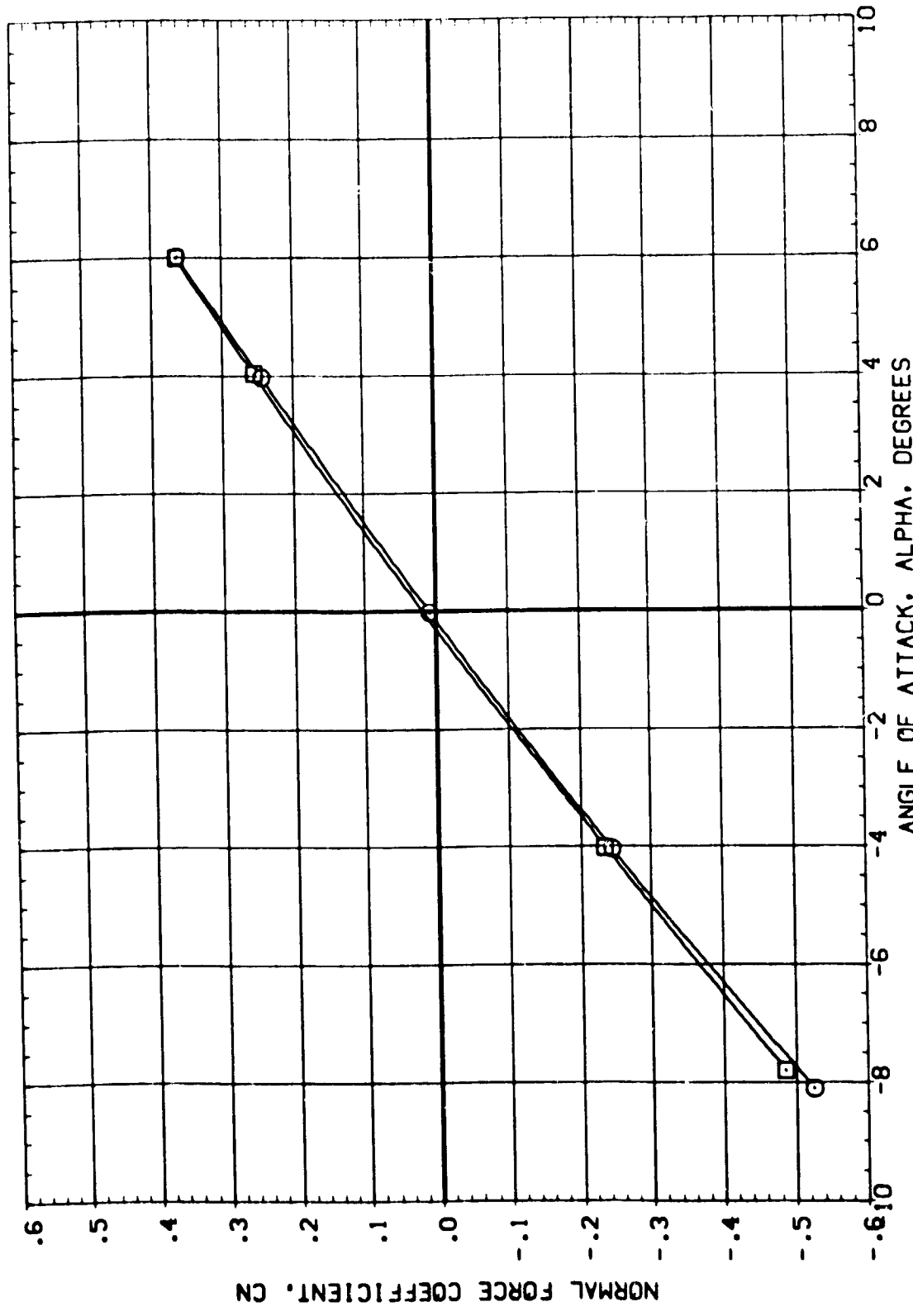
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION			
(B,F095)	CALSPAN T14-053	.000	10.000	36.200	2.330	SREF	2650.0004	FT.	504
(B,F097)	CALSPAN T14-053	.000	10.000	36.200	2.330	LREF	1328.0002	INCHES	
						BREF	1328.0002	INCHES	
						XMPP	953.0001	INCHES	
						YMPP	.0000	INCHES	
						ZMPP	400.0000	INCHES	
						SCALE	10190		



FLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BJF057)	CALSPAN T14-053	.000	10.000	36.200	2.330	SREF 2690.0004 FT. SQ
	CALSPAN T14-053	.000	10.000			LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						YMRP 953.0001 INCHES
						ZMRP .0000 INCHES
						SCALE 400.0000 INCHES

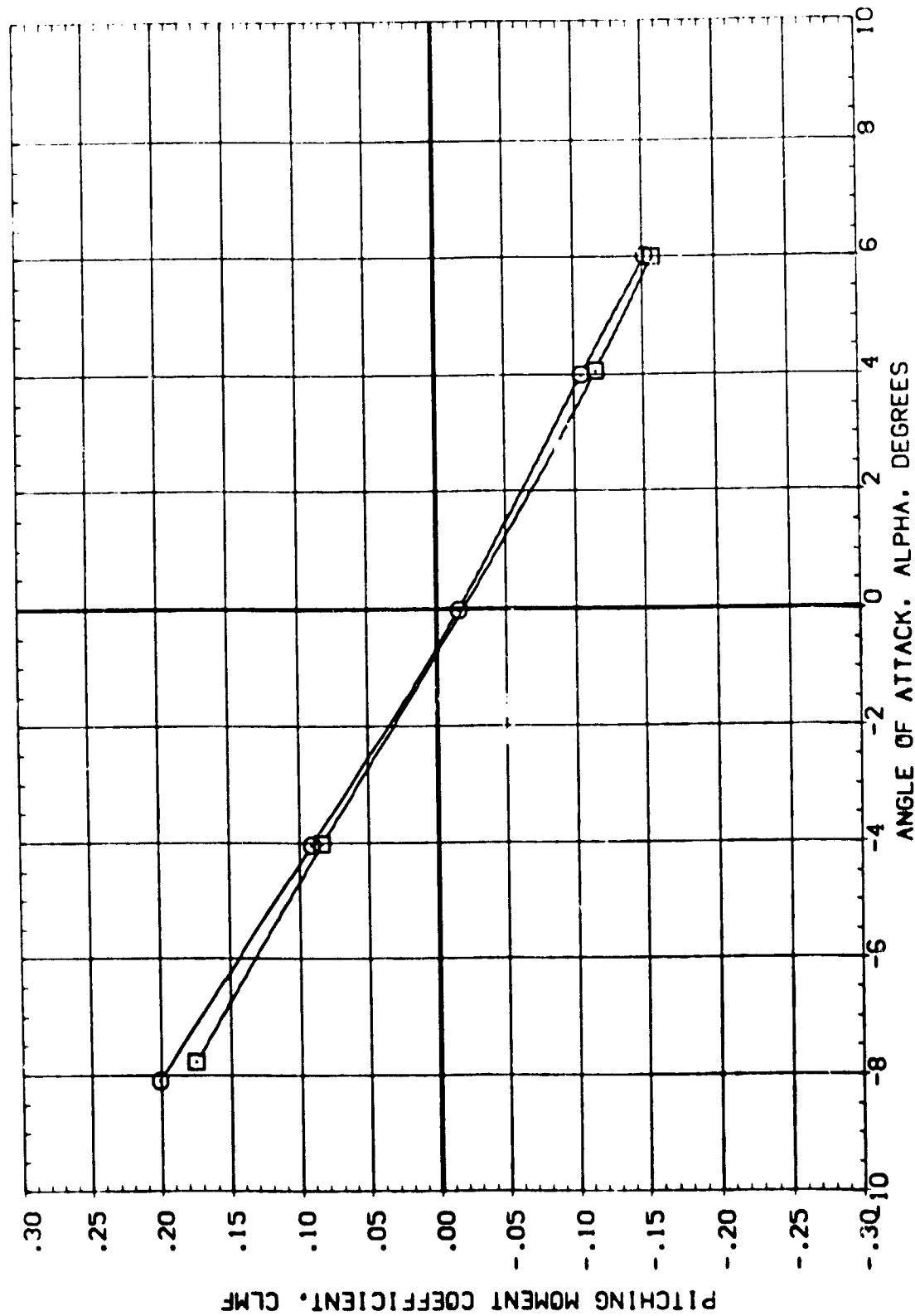


PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(B)F0951	CALSPAN T14-053	.000	10.000	36.200	2.330	SREF 2690.0004 FT. 52
(B)F0971	CALSPAN T14-053	.000	10.000	36.200	2.330	LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						XMRP 953.0001 INCHES
						YMRP 400.0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190



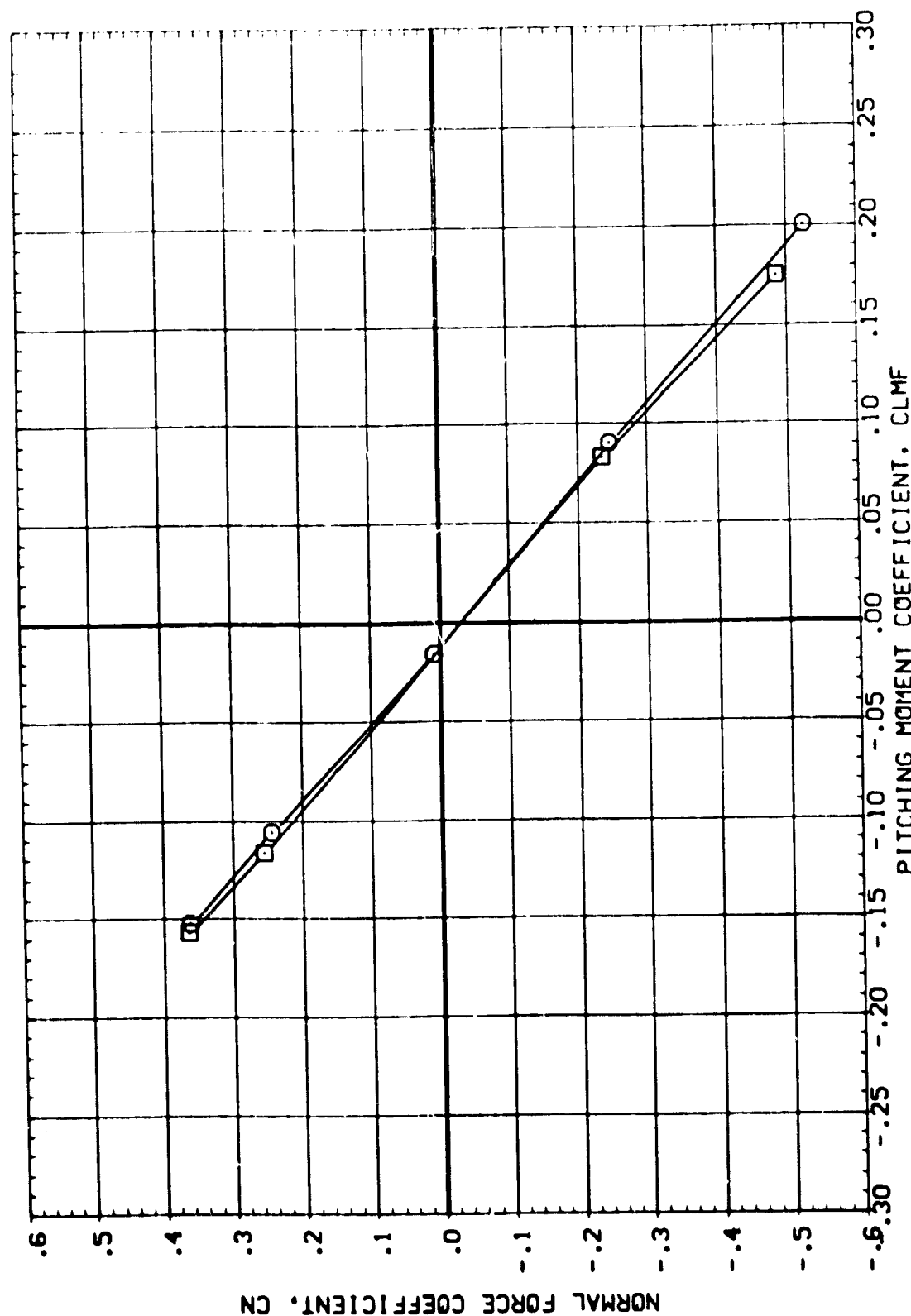
PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20

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DATA SET SYMBOL		CONFIGURATION DESCRIPTION		BETA		RUDDER		OPR		SMRPR		REFERENCE INFORMATION	
(BLF055)	8	CALSPAN T14-053	01 T1 S1	.000	10.000	36.200	2.330	SREF	2690.0004	FT. SQ.			
(BLF057)		CALSPAN T14-053	01 T1 S1	.000	10.000	36.200	2.330	LREF	1328.0002	INCHES			
								BREF	1328.0002	INCHES			
								XMRP	923.0001	INCHES			
								YMRP	.0000	INCHES			
								ZMRP	400.0000	INCHES			
								SCALE	.0190				



PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LONGITUDINAL CHARACTERISTICS

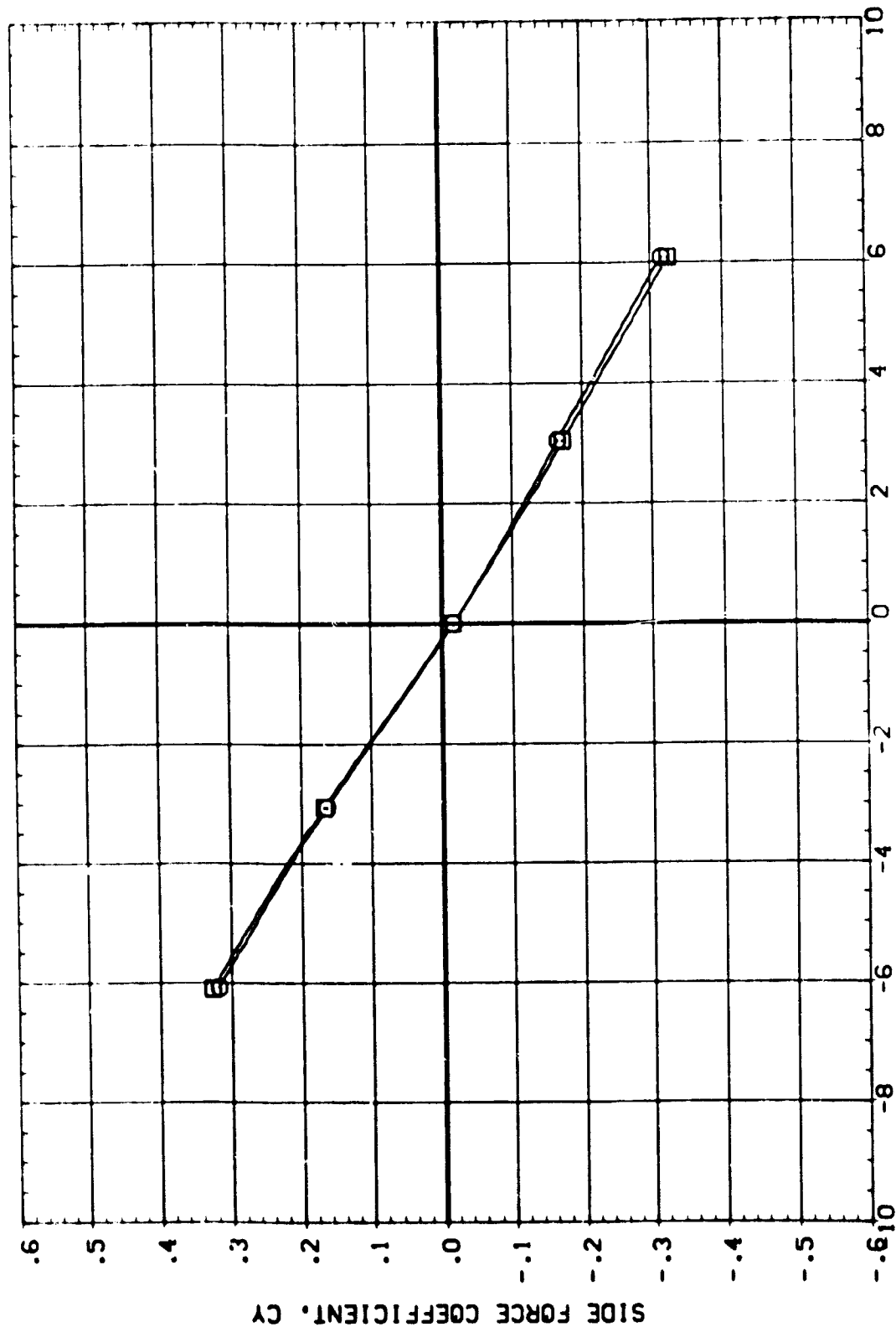
(A)MACH = 1.20

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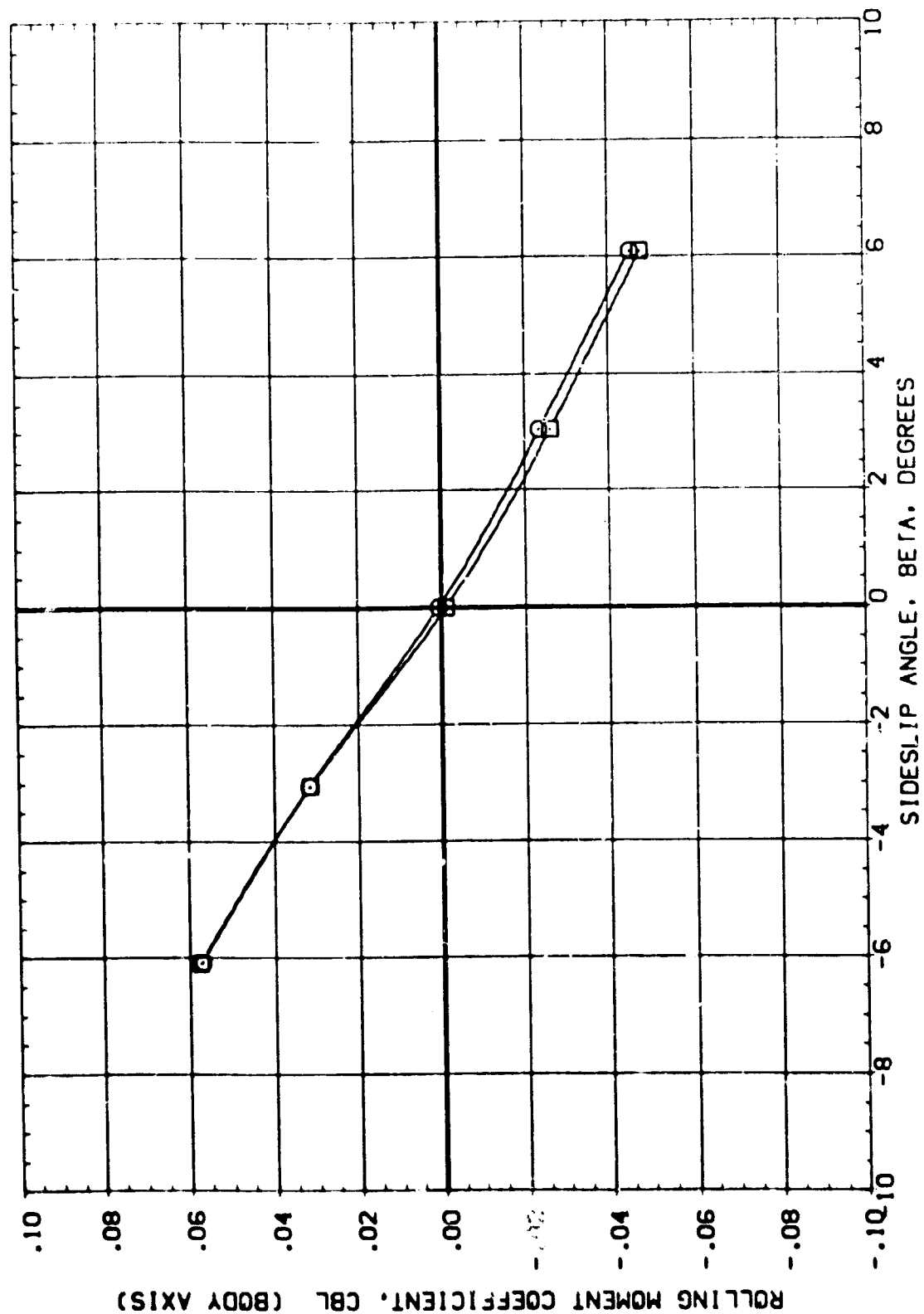
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(RUS101)	CALSPAN 114-053	.000	10.000	28.310	2.020	SREF 2690.0004 FT. SQ.
(BUS103)	CALSPAN 114-053	.000	10.000			LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						XMRP 953.0001 INCHES
						YMRP 400.0000 INCHES
						ZMRP 0.0190 INCHES
						SCALE



PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

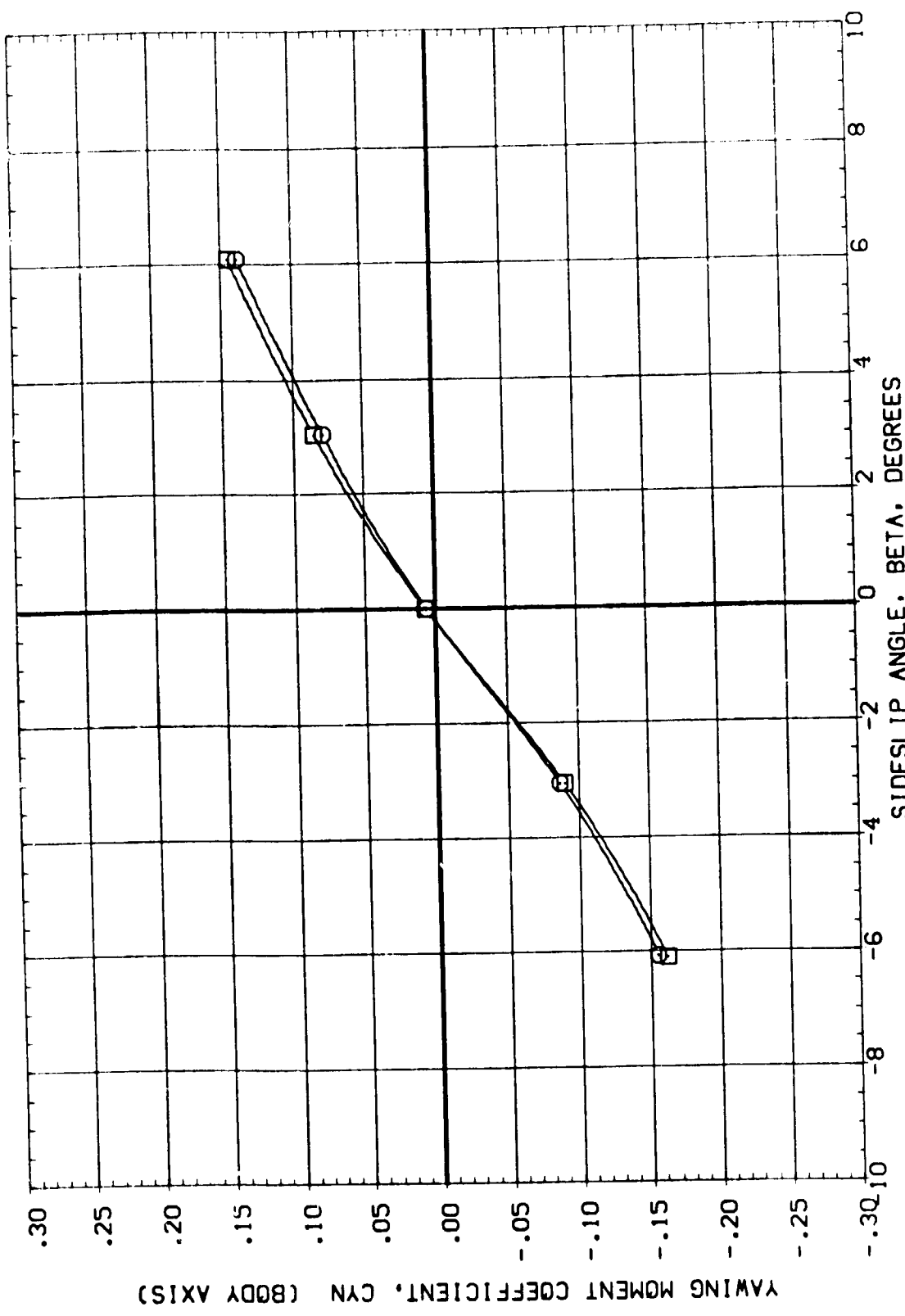
(A)MACH = .90

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		REFERENCE INFORMATION	
(BLF 101)	8	CALSPAN 114-053	01 T1 S1	SREF	2690.0004 FT. SQ
(BLF 103)		CALSPAN 114-053	01 T1 S1	LREF	1328.0002 INCHES
				BREF	1328.0002 INCHES
				VMRP	953.0001 INCHES
				VMRP	3000 INCHES
				ZMRP	400.0000 INCHES
				SCALE	.0190





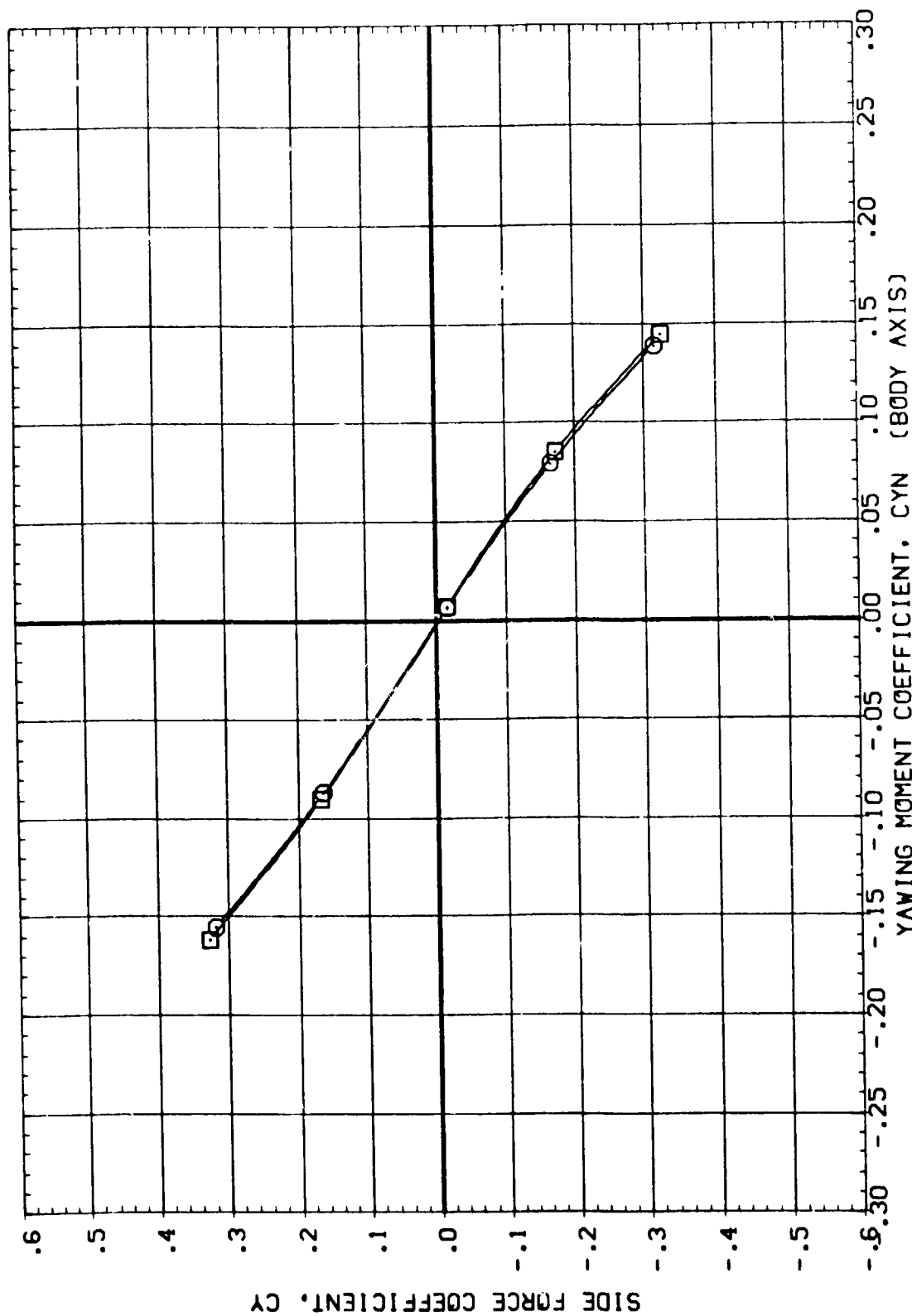
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	QPR	SRMPR	REFERENCE INFORMATION
(BUFI01)	CALSPAN T14-053	.000	10.000	28.310	2.020	SREF 2690.0004 FT. SCJ
(BUFI03)	CALSPAN T14-053	.000	10.000			LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						XMRP 953.0001 INCHES
						YMRP .0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190



PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

(A)MACH = .90

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA		RUDDER		DPR		SMRPR		REFERENCE INFORMATION	
(BUF101)	CA LSPAN T14-053	01	T1 S1	.000	10.000	10.000	28.310	2.020	SREF	2690.0004	FT. SQ		
(BUF103)	CA LSPAN T14-053	01	T1 S1	.000	10.000	10.000	28.310	2.020	LREF	1328.0002	INCHES		
									BREF	1328.0002	INCHES		
									XMRP	953.0001	INCHES		
									YMRP	.0000	INCHES		
									ZMRP	400.0000	INCHES		
									SCALE	.0190			

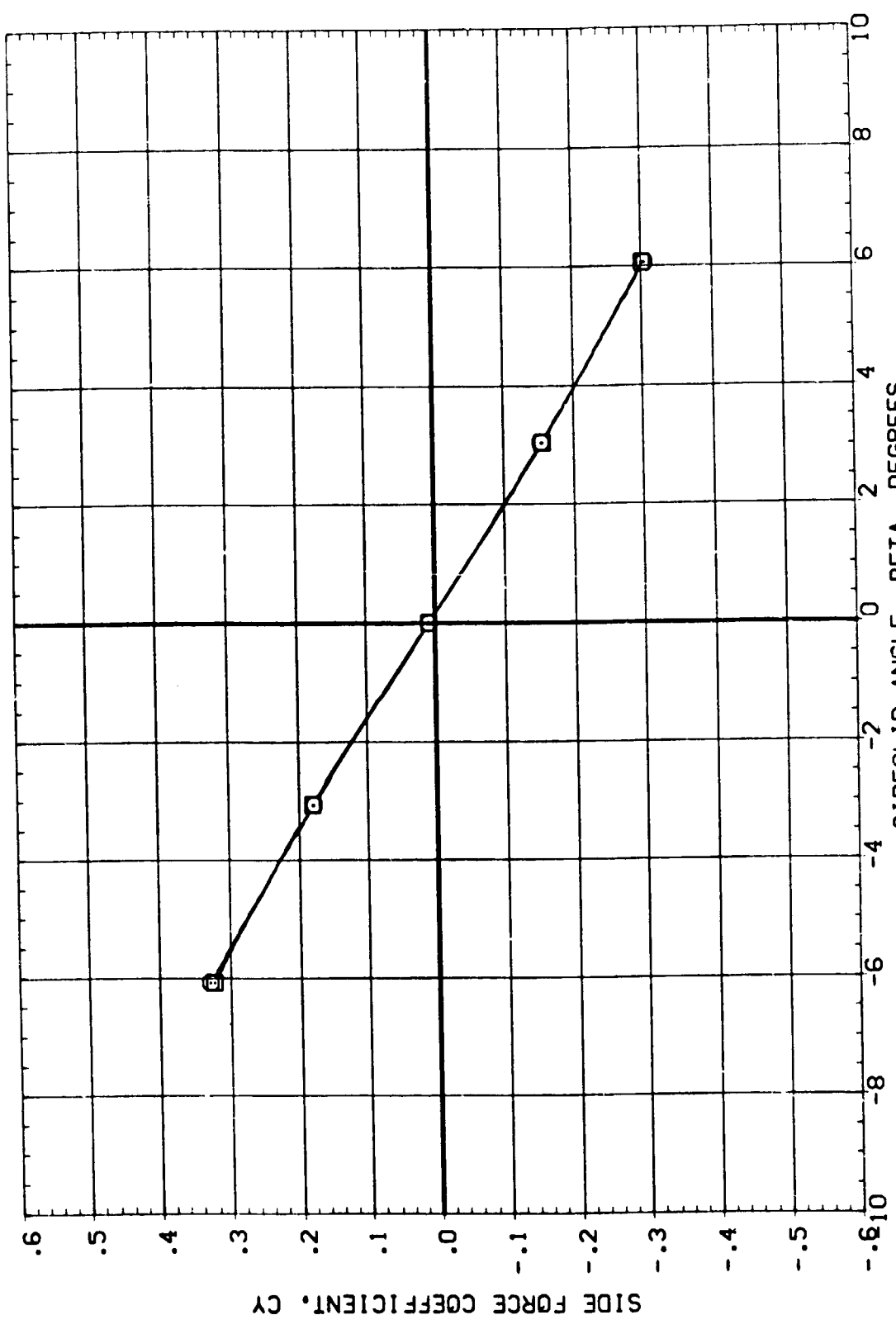


PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

(A)MACH = .90



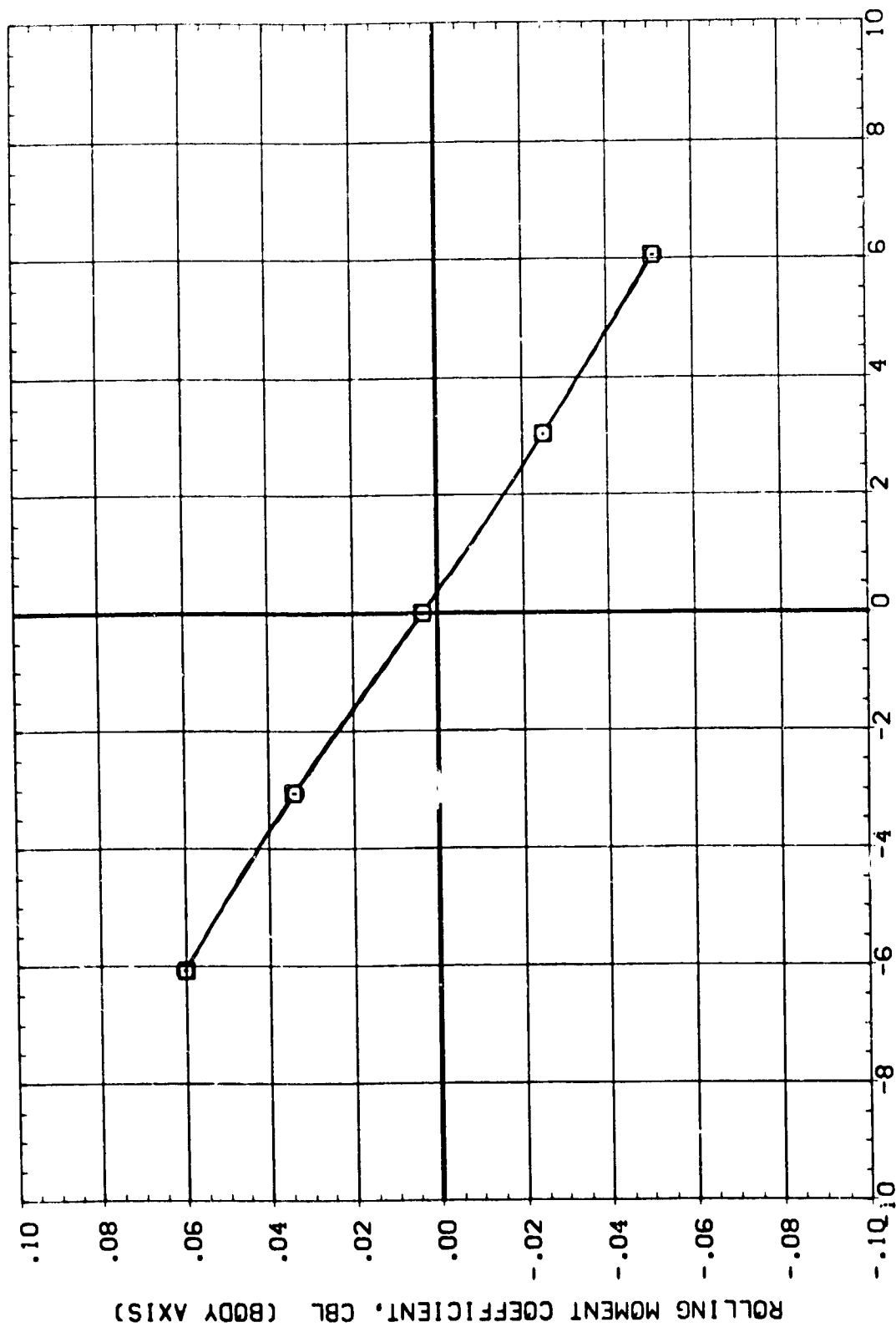
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUFO95)	CALSPAN T14-053	.000	10.000	36.200	2.330	SREF 2690.0004 FT. SQ.
(BUFO98)	CALSPAN T14-053	.000	10.000	36.200	2.330	LREF 1328.0002 INCHES
						BREF 1328.0002 INCHES
						XMRP 953.0001 INCHES
						YMRP 400.0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190



PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

(A)MACH = 1.20

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		ALPHA		RUDDER		OPR		SRMPR		REFERENCE INFORMATION			
(B)F096)	(B)F098)	CALSPAN T14-053	01 T1 S1	.000	.000	10.000	36.200	2.330	SREF	2690.0004	FT. SQU				
		CALSPAN T14-053	01 T1 S1			10.000			LREF	1328.0002	INCHES				
									BREF	1328.0002	INCHES				
									XMRP	953.0001	INCHES				
									YMRP	.0000	INCHES				
									ZMRP	400.0000	INCHES				
									SCALE	.0190					

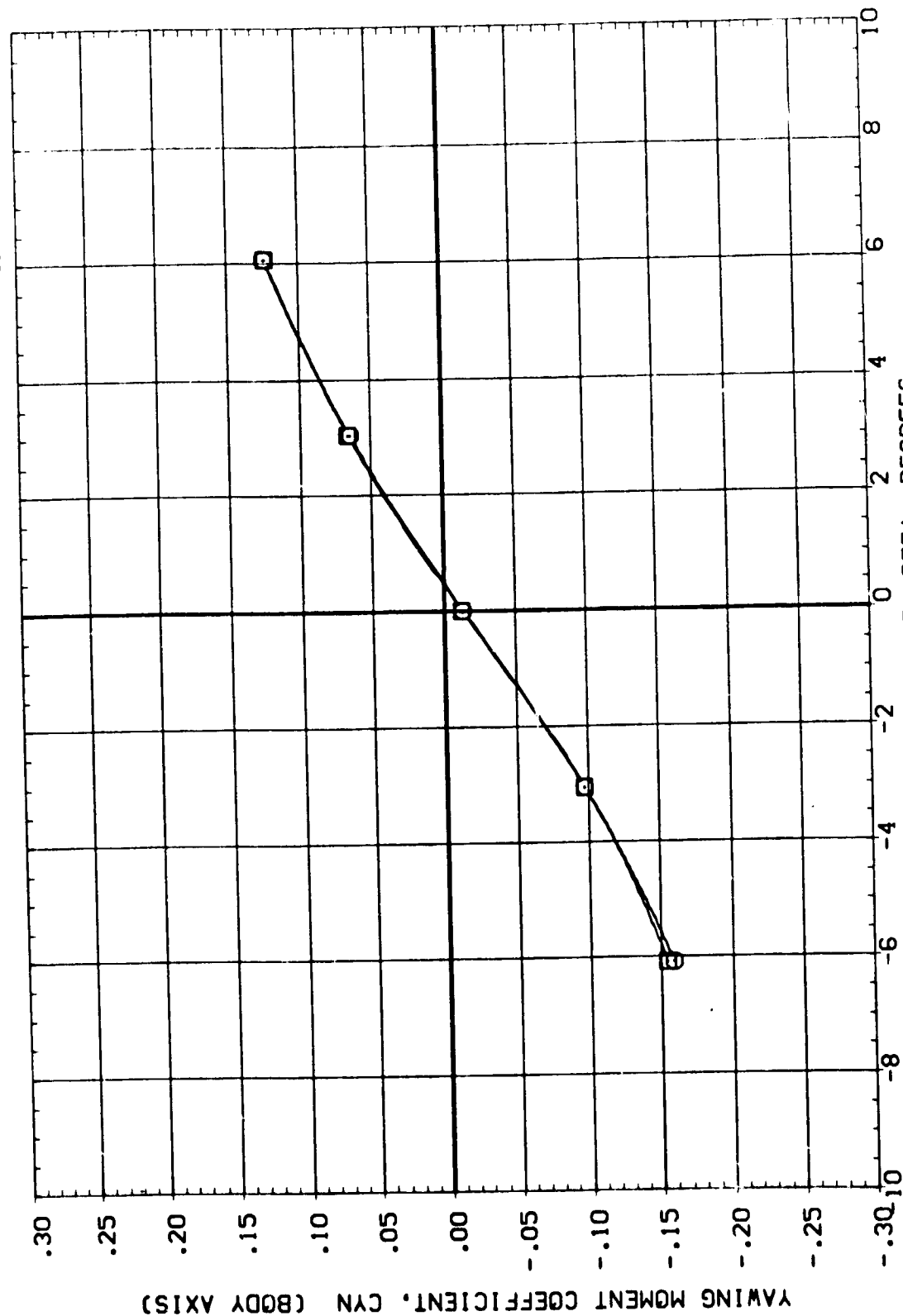


PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

(A)MACH = 1.20



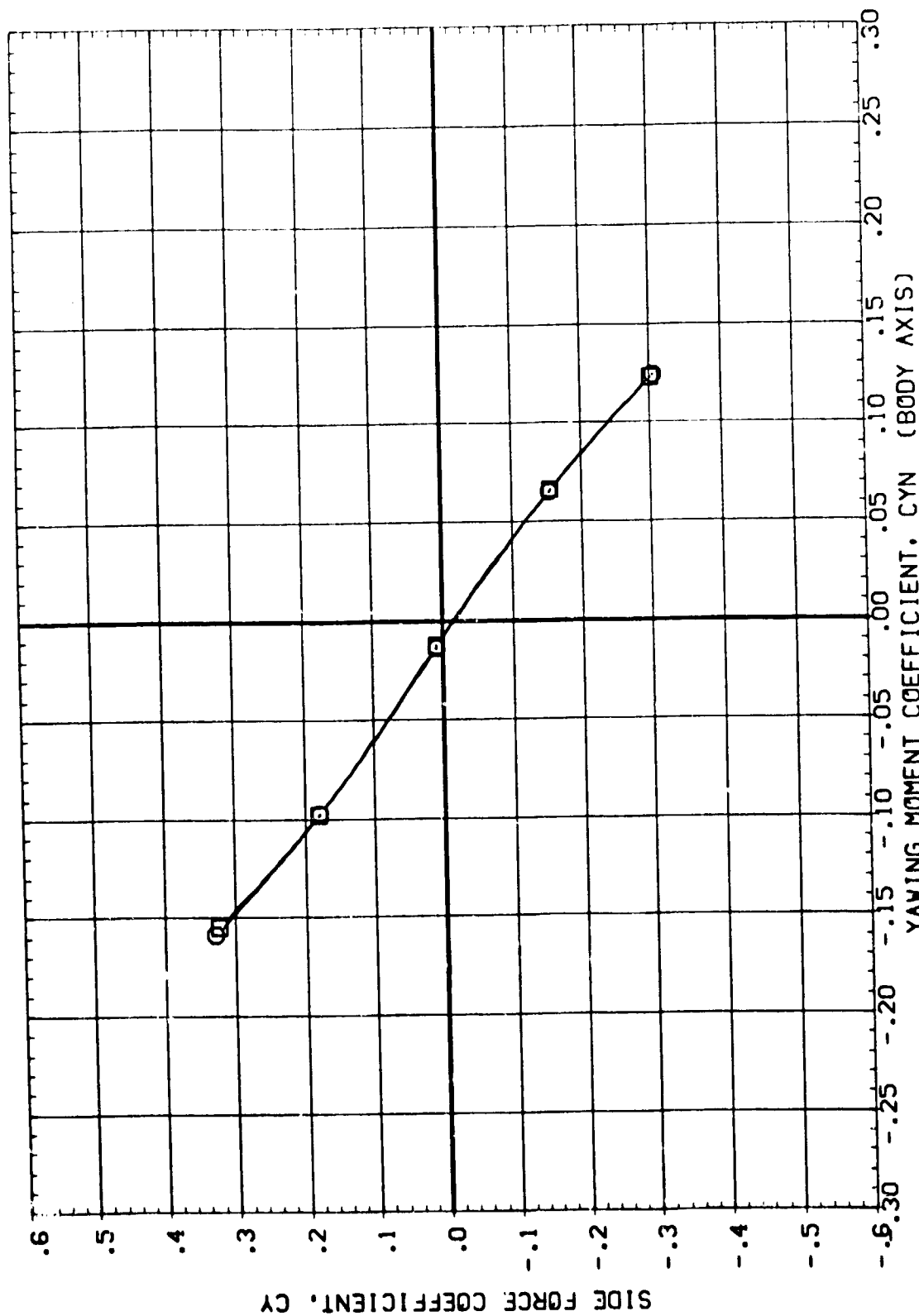
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BJF096)	CALSPAN T14-053	.000	10.000	36.200	2.330	SREF 2690.0004 FT. SOU
(BJF098)	CALSPAN T14-053	.000	10.000			LREF 1.328.0002 INCHES
						BREF 1.328.0002 INCHES
						XMRP .953.0001 INCHES
						YMRP .0000 INCHES
						ZMRP .400.0000 INCHES
						SCALE .0190



PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

(A)MACH = 1.20

DATA SET SYMBOL		CONFIGURATION DESCRIPTION		REFERENCE INFORMATION	
(BUF096)	□	CALSPAN T14-053	01 T1 S1	SREF	2690.0004 FT. SQ
(BUF098)	□	CALSPAN T14-053	01 T1 S1	LREF	1328.0002 INCHES
				BREF	1328.0002 INCHES
				YMRP	953.0001 INCHES
				ZMRP	.0000 INCHES
				SCALE	400.0000 INCHES
					.0190

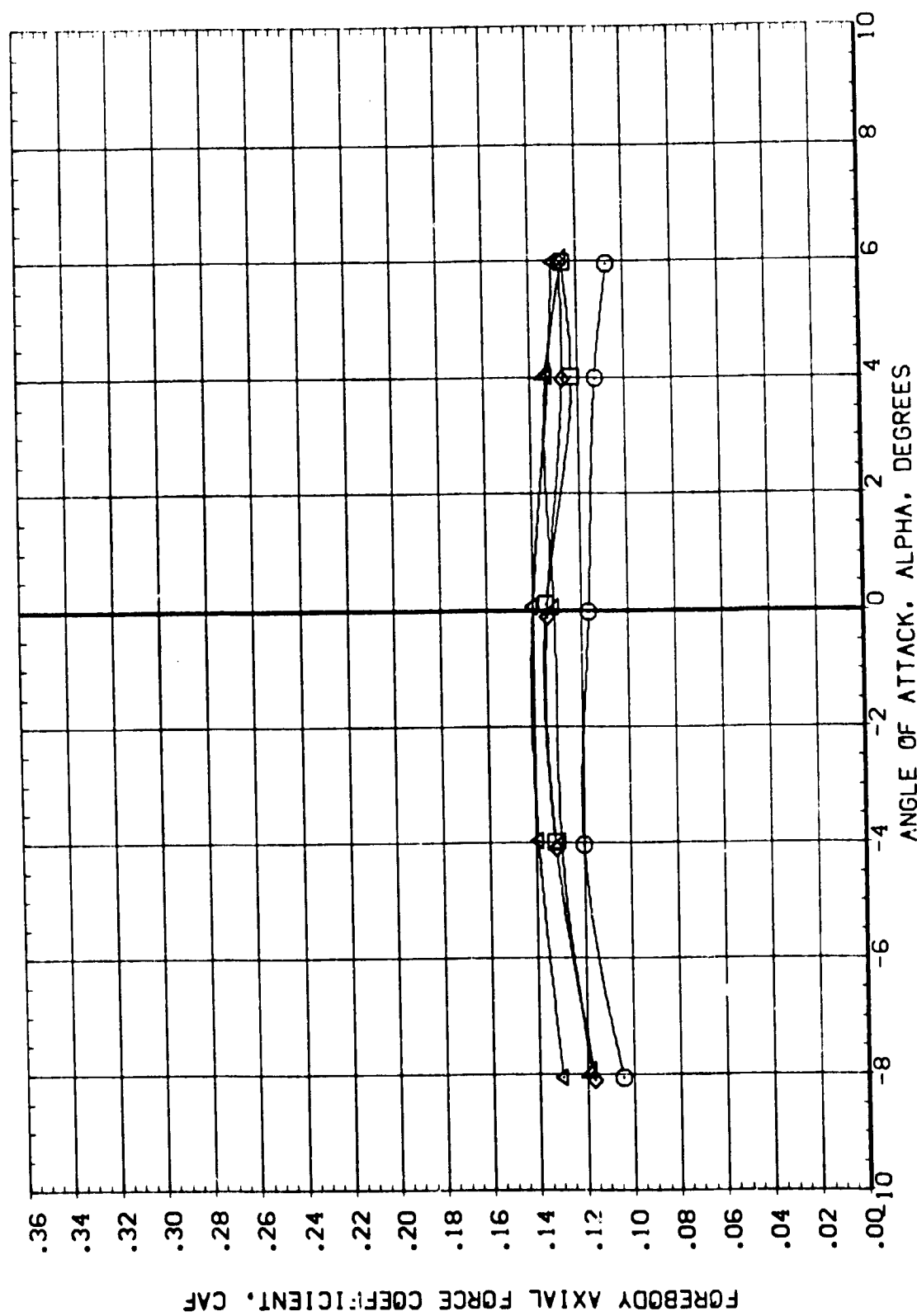


PLUME SIZE AND RUDDER DEFLECTION EFFECT ON LATERAL CHARACTERISTICS

(A)MACH = 1.20



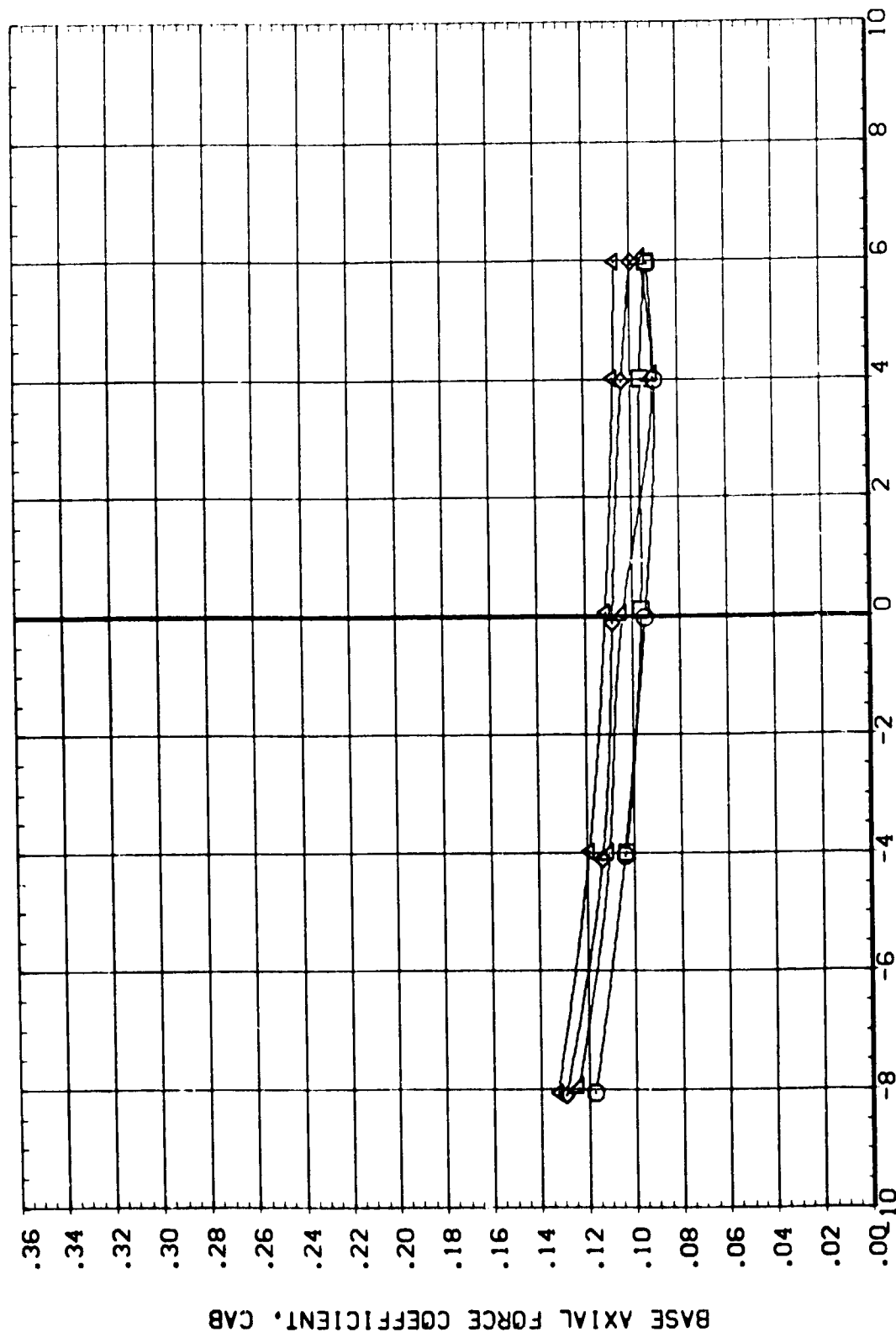
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION	
(BUF081)	CALSPAN T14-053	.000	.000	28.310	2.020	SREF	2690.0004 FT. SQ
(BUF090)	CALSPAN T14-053	.000	.000	28.310	2.020	LREF	1328.0002 INCHES
(BUF111)	CALSPAN T14-053	.000	.000	28.310	2.020	BREF	1328.0002 INCHES
(BUF115)	CALSPAN T14-053	.000	.000	28.310	2.020	XMRP	953.0001 INCHES
(BUF073)	CALSPAN T14-053	.000	.000	28.310	2.020	ZMRP	400.0000 INCHES
						SCALE	.0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

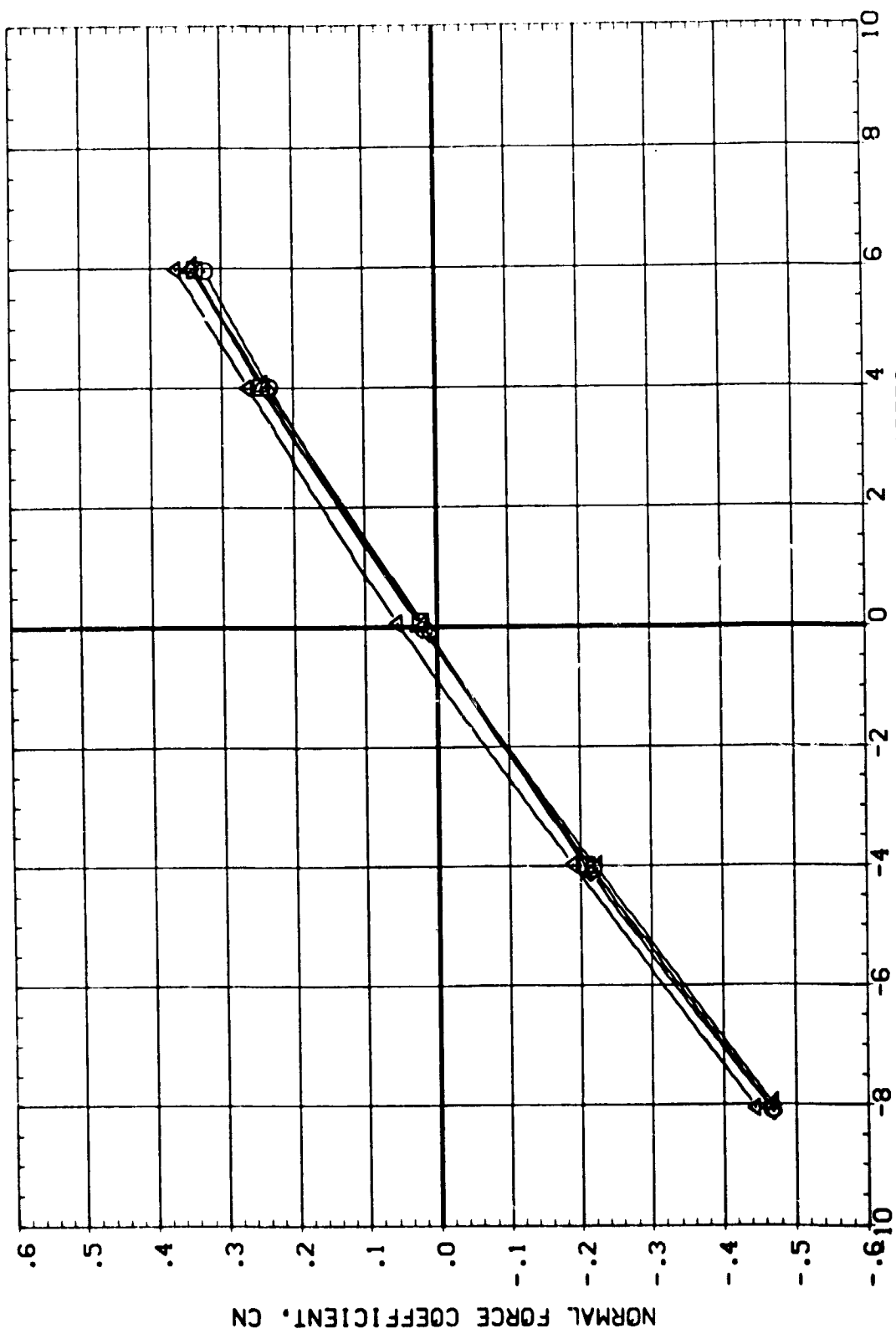
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	IA36	BETA	RUDDER	QPR	SRMPR	REFERENCE INFORMATION	
(BJF088)	CALSPAN T14-053	IA36	.000	.000	28.310	2.020	SREF	2690.0004 FT. SQ
(BJF090)	CALSPAN T14-053	IA36	.000	.000	28.310	2.020	LREF	1328.0002 INCHES
(BJF111)	CALSPAN T14-053	IA36	.000	.000	28.310	2.020	BREF	1328.0002 INCHES
(BJF115)	CALSPAN T14-053	IA36	.000	.000	28.310	2.020	YMRP	953.0001 INCHES
(BJF073)	CALSPAN T14-053	IA36	.000	.000	28.310	2.020	ZMRP	400.0000 INCHES
							SCALE	.0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS



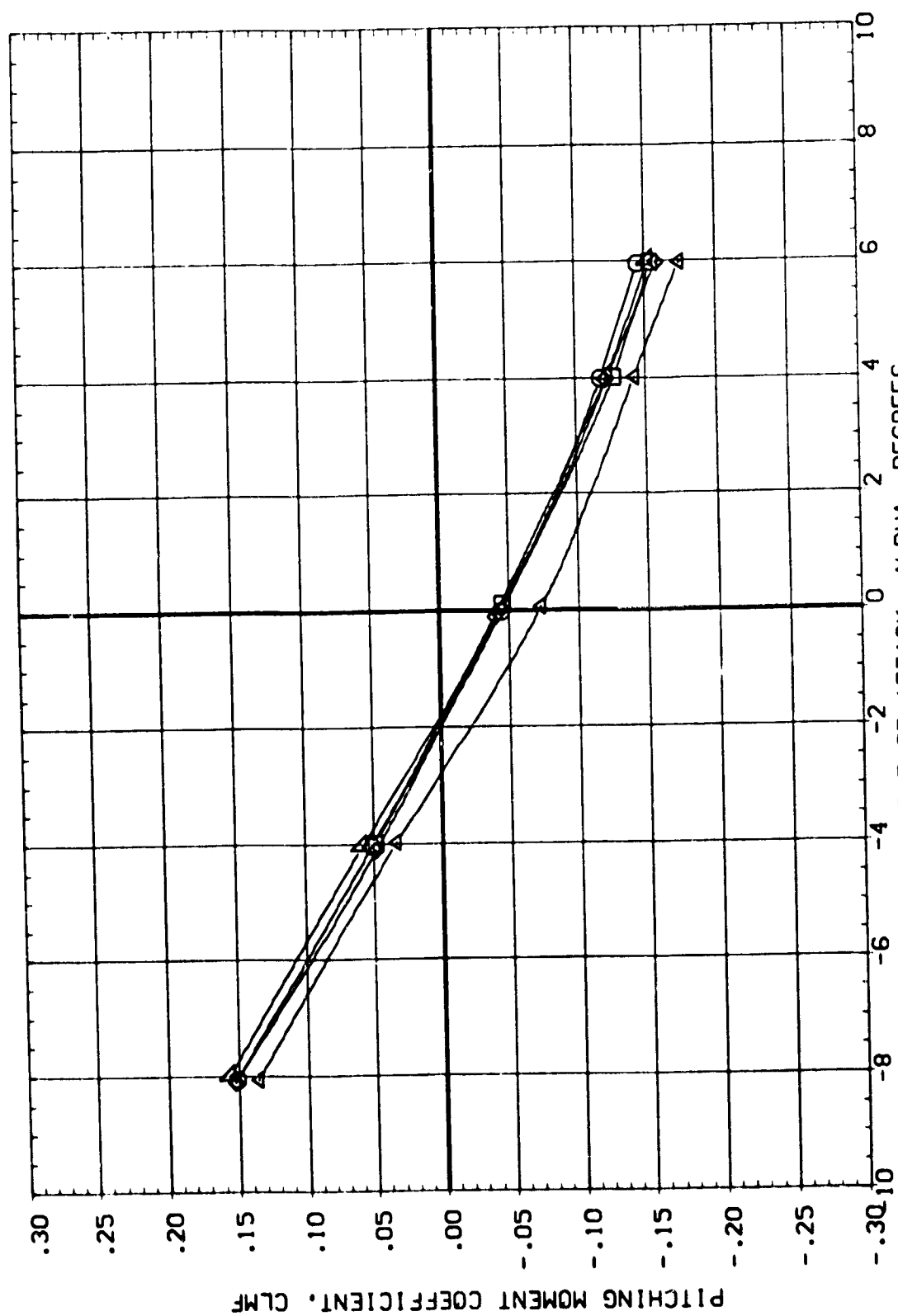
DATA	SYMBOL	CONFIGURATION	DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(B)F088)	□	CALSPAN	T14-053	.000	.000	28.310	2.020	SREF 2690.0004 FT. SQ
(B)F090)	□	CALSPAN	T14-053	.000	.000	28.310	2.020	LREF 1328.0002 INCHES
(B)F111)	□	CALSPAN	T14-053	.000	.000	28.310	2.020	BREF 1328.0002 INCHES
(B)F115)	□	CALSPAN	T14-053	.000	.000	28.310	2.020	XMRP 953.0001 INCHES
(B)F073)	□	CALSPAN	T14-053	.000	.000	28.310	2.020	YMRP 400.0000 INCHES
								ZMRP 400.0000 INCHES
								SCALE .0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	QPR	SRMPR	REFERENCE INFORMATION
(B.F.088)	CALSPAN T14-053	.000	.000	28.310	2.020	SREF 2690.0004 FT. SQU
(B.F.090)	CALSPAN T14-053	.000	.000	28.310	2.020	LREF 1328.0002 INCHES
(B.F.111)	CALSPAN T14-053	.000	.000	28.310	2.020	BREF 1328.0002 INCHES
(B.F.115)	CALSPAN T14-053	.000	.000	28.310	2.020	XMRP 953.0001 INCHES
(B.F.073)	CALSPAN T14-053	.000	.000	28.310	2.020	ZMRP 400.0000 INCHES
						SCALE .0190

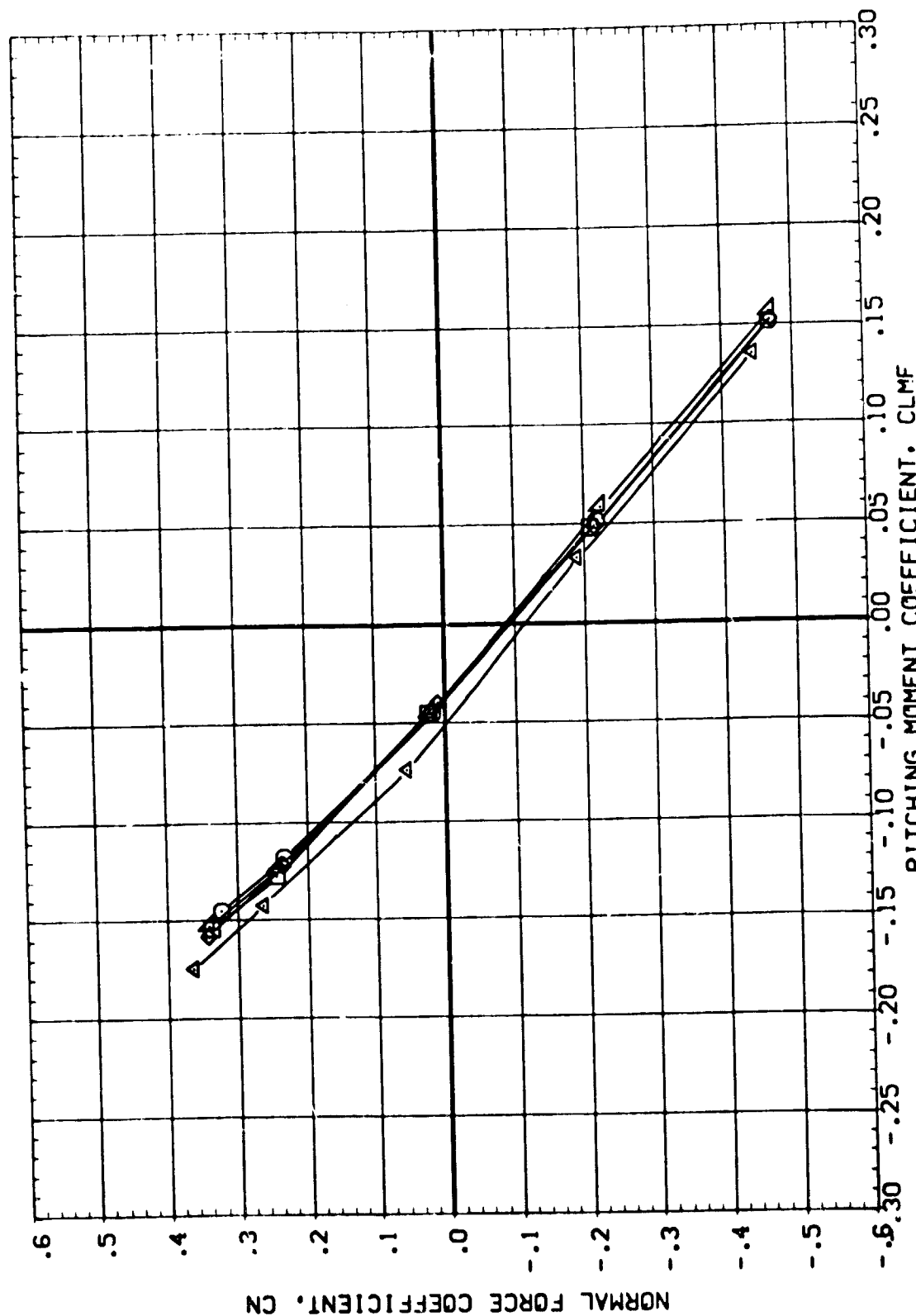


PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS





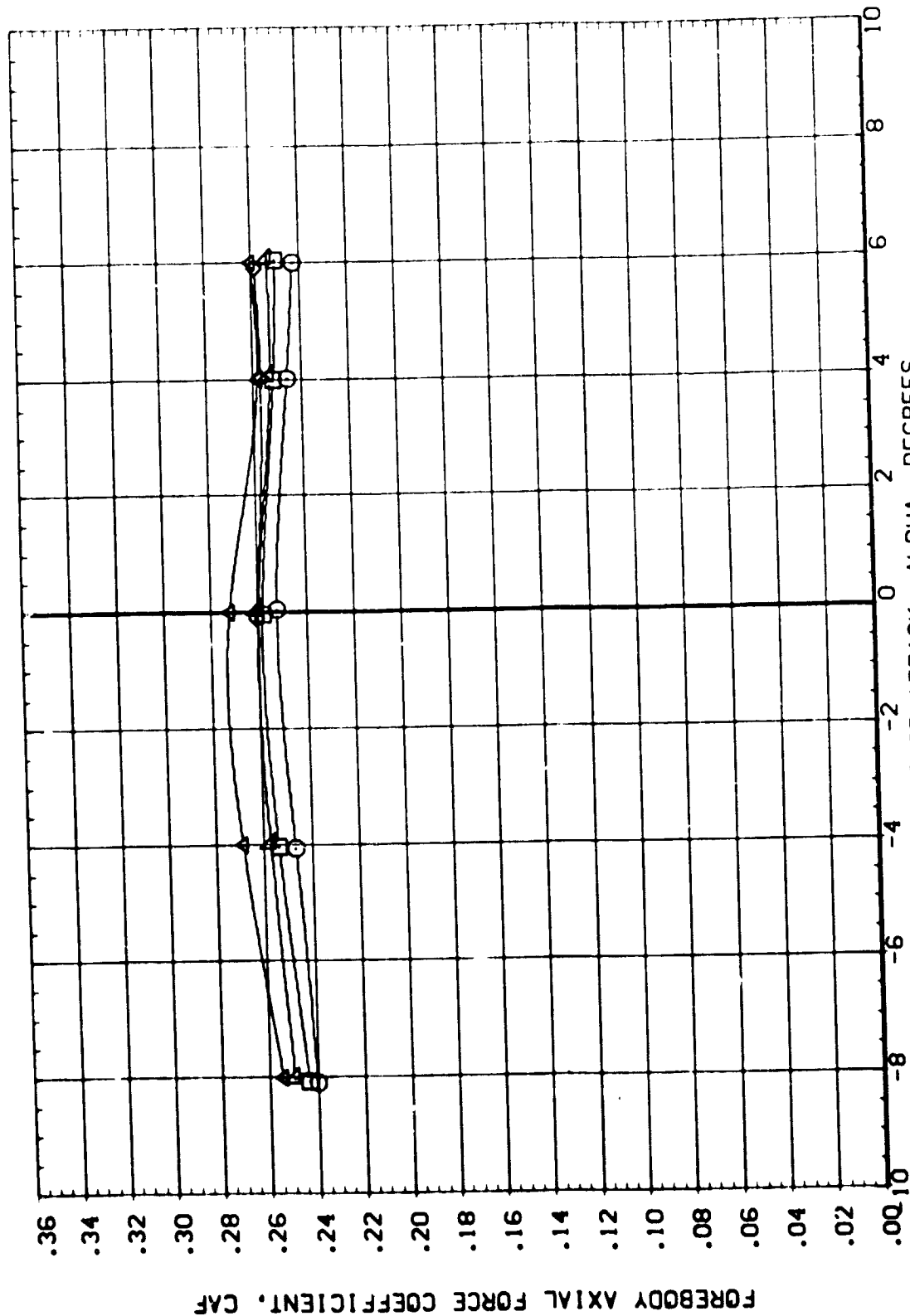
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION	
(B)F088)	CALSPAN T14-053	.000	.000	28.310	2.020	SREF	2690.0004 FT SQ
(B)F090)	CALSPAN T14-053	.000	.000	28.310	2.020	LREF	1328.0002 INCHES
(B)F111)	CALSPAN T14-053	.000	.000	28.310	2.020	BREF	1328.0002 INCHES
(B)F115)	CALSPAN T14-053	.000	.000	28.310	2.020	YMRP	953.0001 INCHES
(B)F073)	CALSPAN T14-053	.000	.000	28.310	2.020	ZMRP	400.0000 INCHES
						SCALE	.0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	DPR	SRMPR	REFERENCE INFORMATION
(BUFO81)	□	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	SREF 2690.0004 FT. 50J
(BUFO83)	○	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(BUFO85)	△	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(BUFO87)	◇	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	XMRP 953.0001 INCHES
(BUFO89)	×	CALSPAN T14-053 02 T1 S1	.000	.000	36.200	2.330	YMRP 400.0000 INCHES
(BUFO91)	+	CALSPAN T14-053 02 T1 S1	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
(BUFO93)	·	CALSPAN T14-053 02 T1 S1	.000	.000	36.200	2.330	SCALE .0190

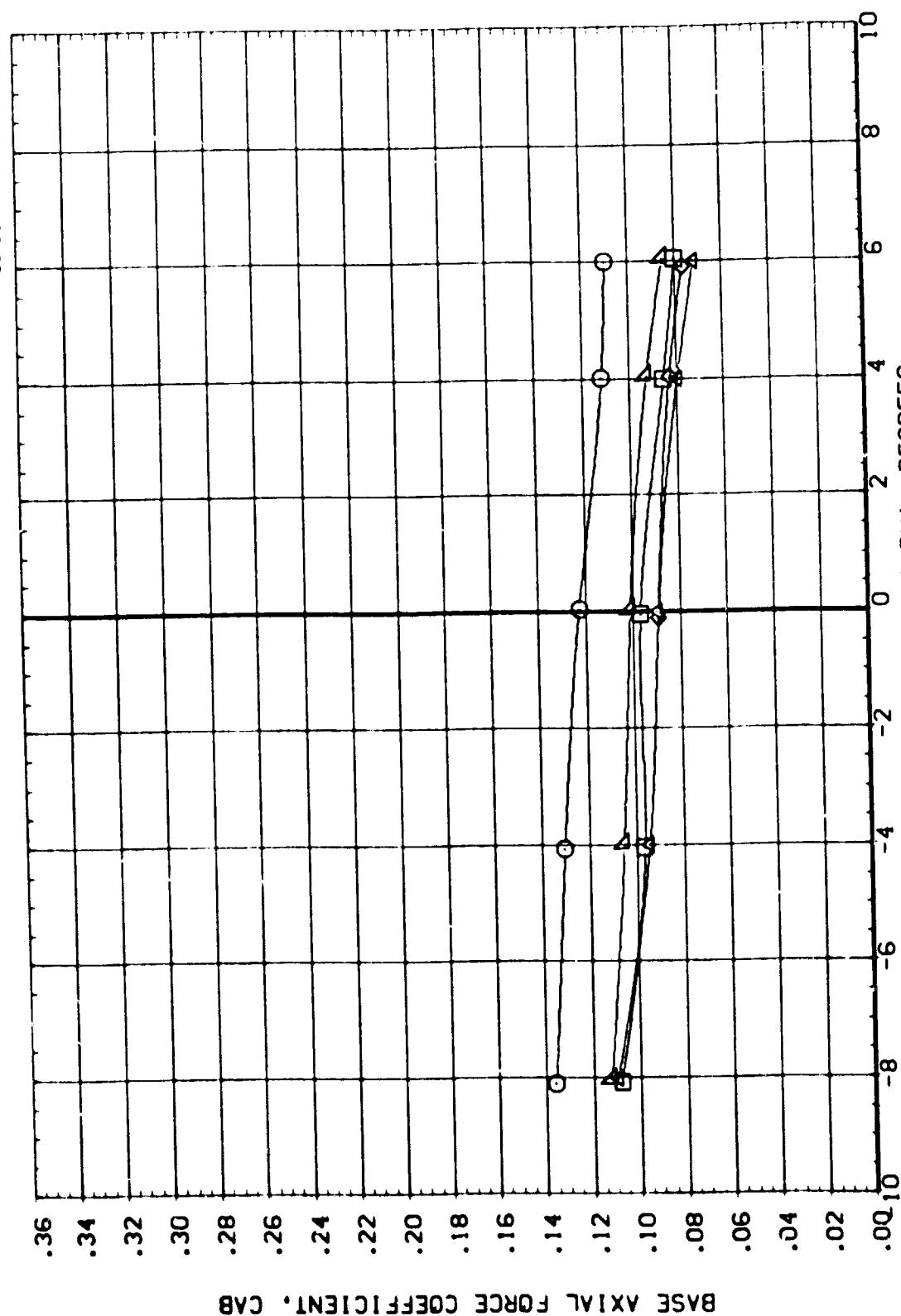


PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(B)F081	CALSPAN T14-053	.000	.000	36.200	2.330	SREF 2690.0004 FT. SQU
(B)F083	CALSPAN T14-053	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(B)F109	CALSPAN T14-053	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(B)F113	CALSPAN T14-053	.000	.000	36.200	2.330	XMRP 953.0000 INCHES
(B)F077	CALSPAN T14-053	.000	.000	36.200	2.330	YMRP 400.0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190



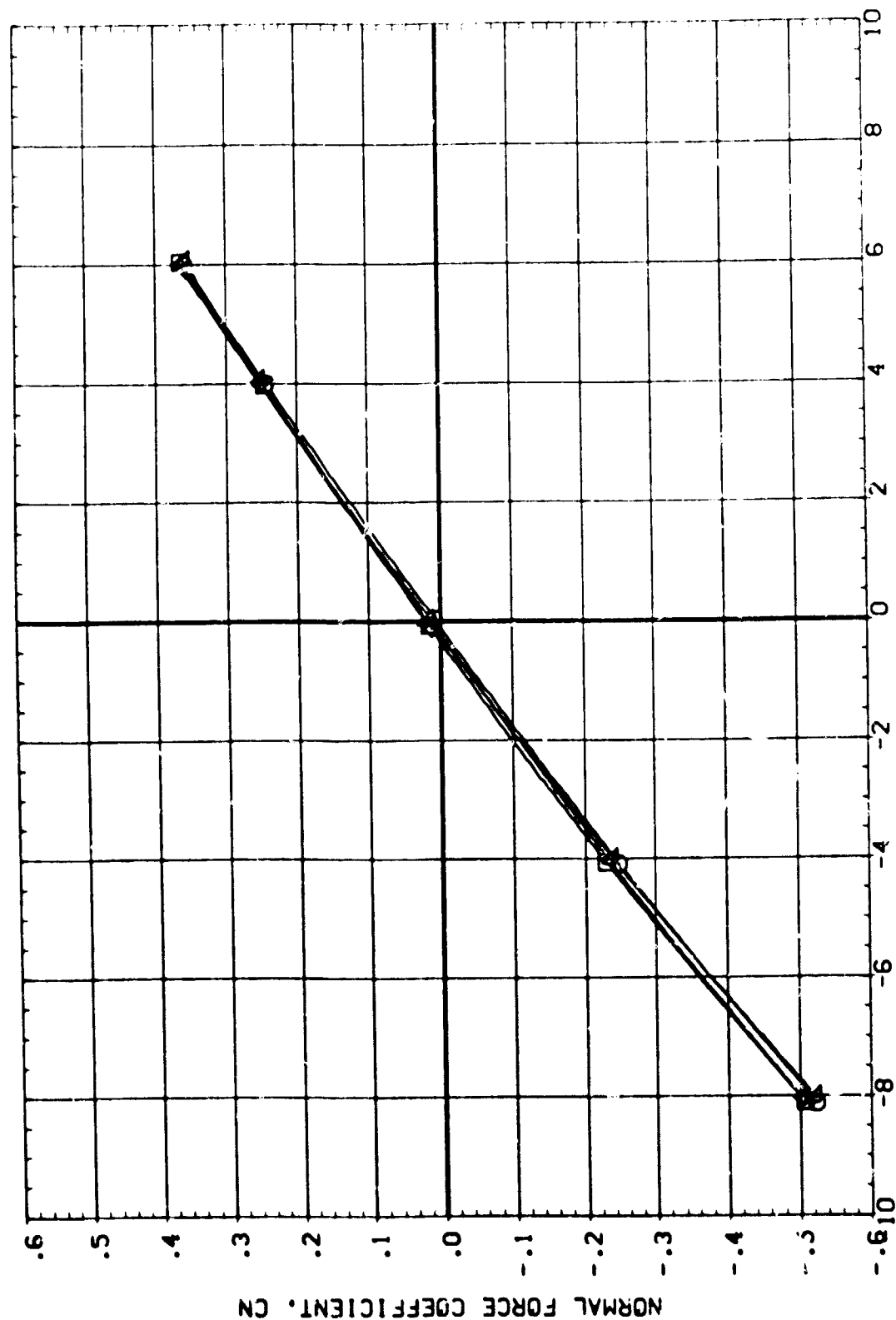
PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20

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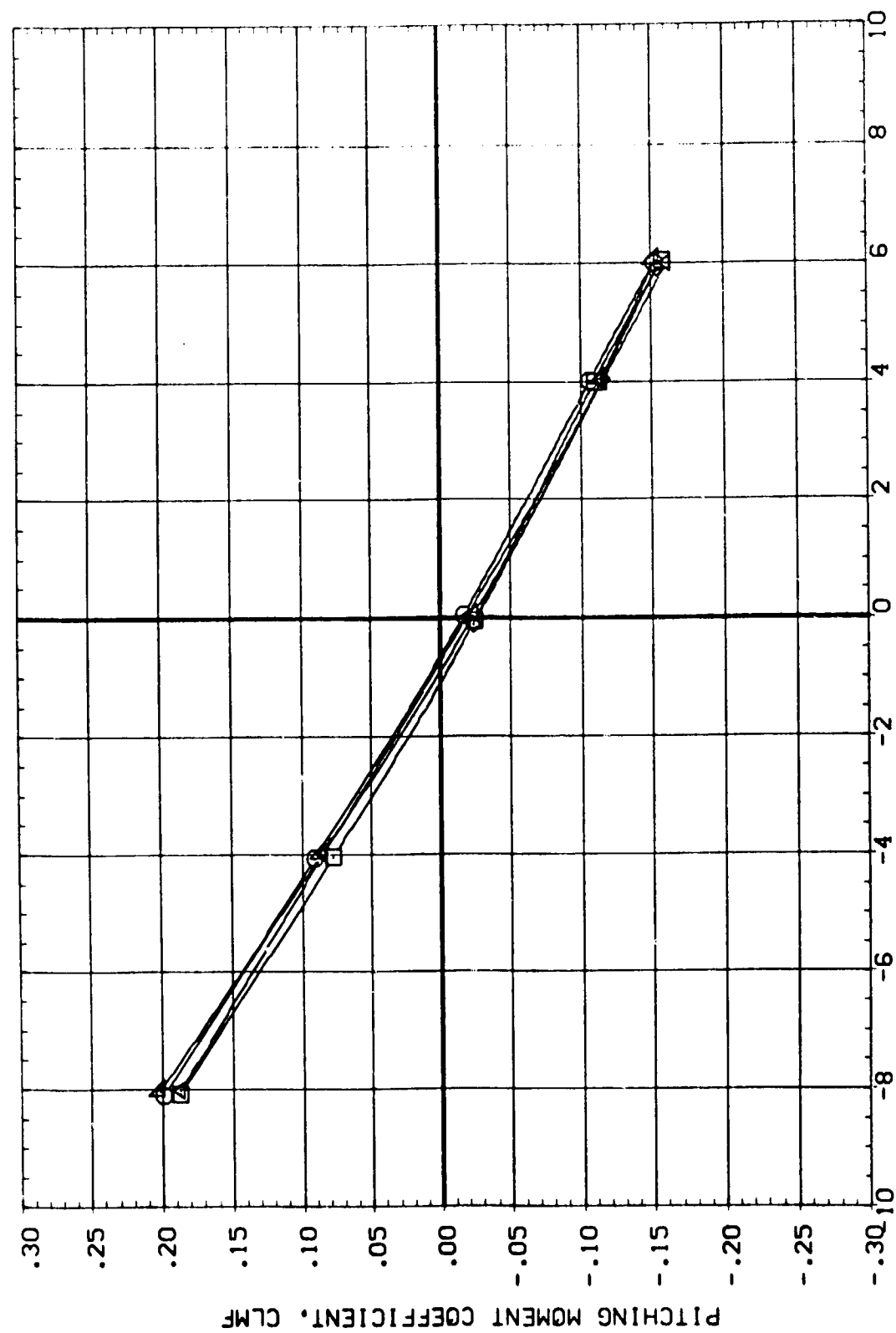
43

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDER	OPR	SRMPR	REFERENCE INFORMATION
(BLF081)	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	SREF 2690.0004 FT. SQ
(BLF083)	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(BLF109)	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(BLF113)	CALSPAN T14-053 01 T1 S1	.000	.000	36.200	2.330	YMRP 953.0001 INCHES
(BLF077)	CALSPAN T14-053 02 T1 S1	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
						SCALE .0190





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	QPR	SRMPR	REFERENCE INFORMATION
(BUFO81)	CALSPAN T14-053	.000	.000	36.200	2.330	SREF 2690.0004 FT. 504
(BUFO83)	CALSPAN T14-053	.000	.000	36.200	2.330	LREF 1.328.0002 INCHES
(BUFO89)	CALSPAN T14-053	.000	.000	36.200	2.330	BREF 1.328.0002 INCHES
(BUFO113)	CALSPAN T14-053	.000	.000	36.200	2.330	XMRP .553.000 INCHES
(BUFO77)	CALSPAN T14-053	.000	.000	36.200	2.330	ZMRP .000 INCHES
						SCALE 400.0000 INCHES
						.0190



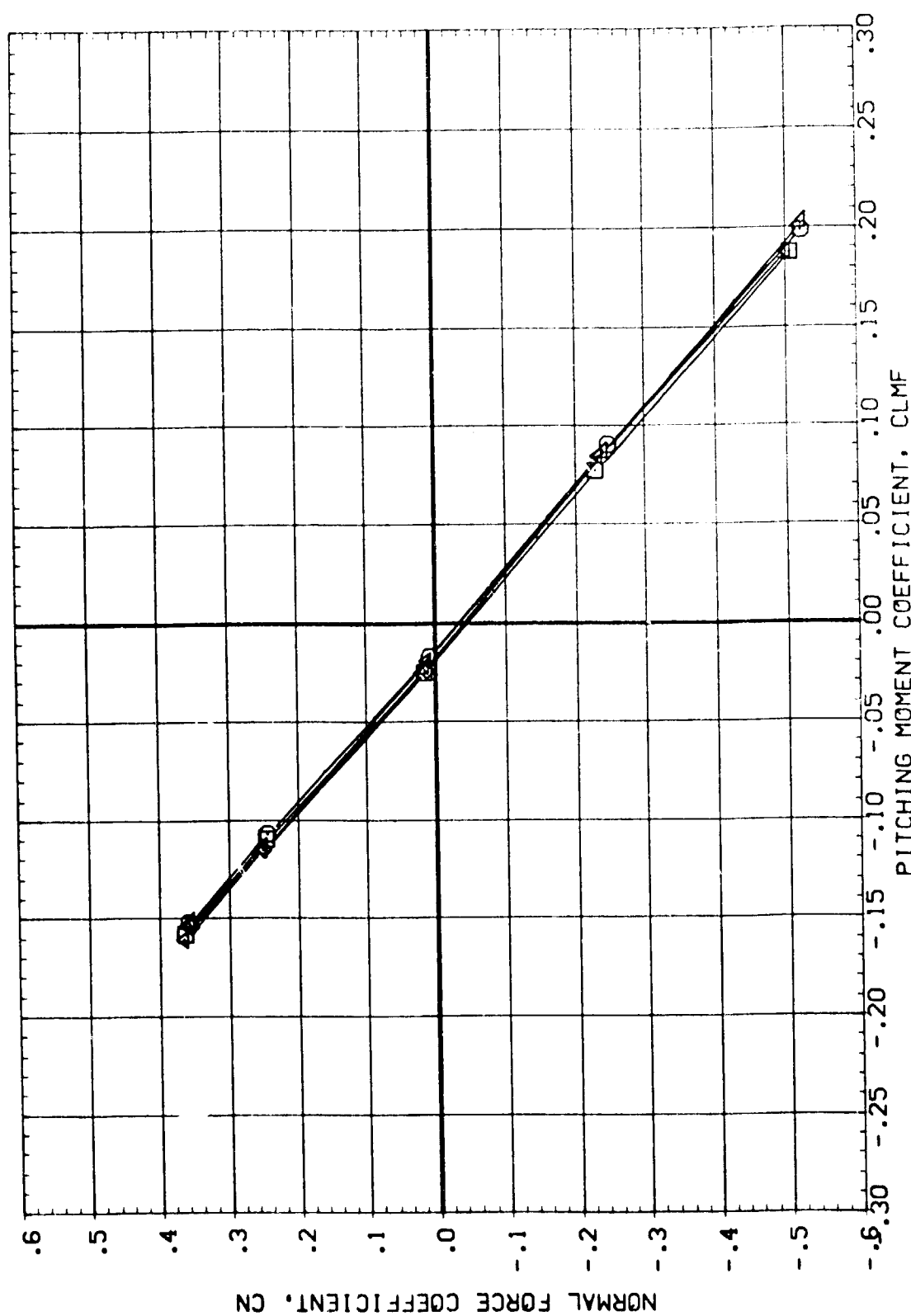
PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	IA36	BETA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(B)F081)	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	SREF 2690.0004 FT. SQJ
(B)F083)	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(B)F109)	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(B)F113)	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	YMRP 953.0001 INCHES
(B)F077)	CALSPAN T14-053	02 T1 S1	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
							SCALE .0190

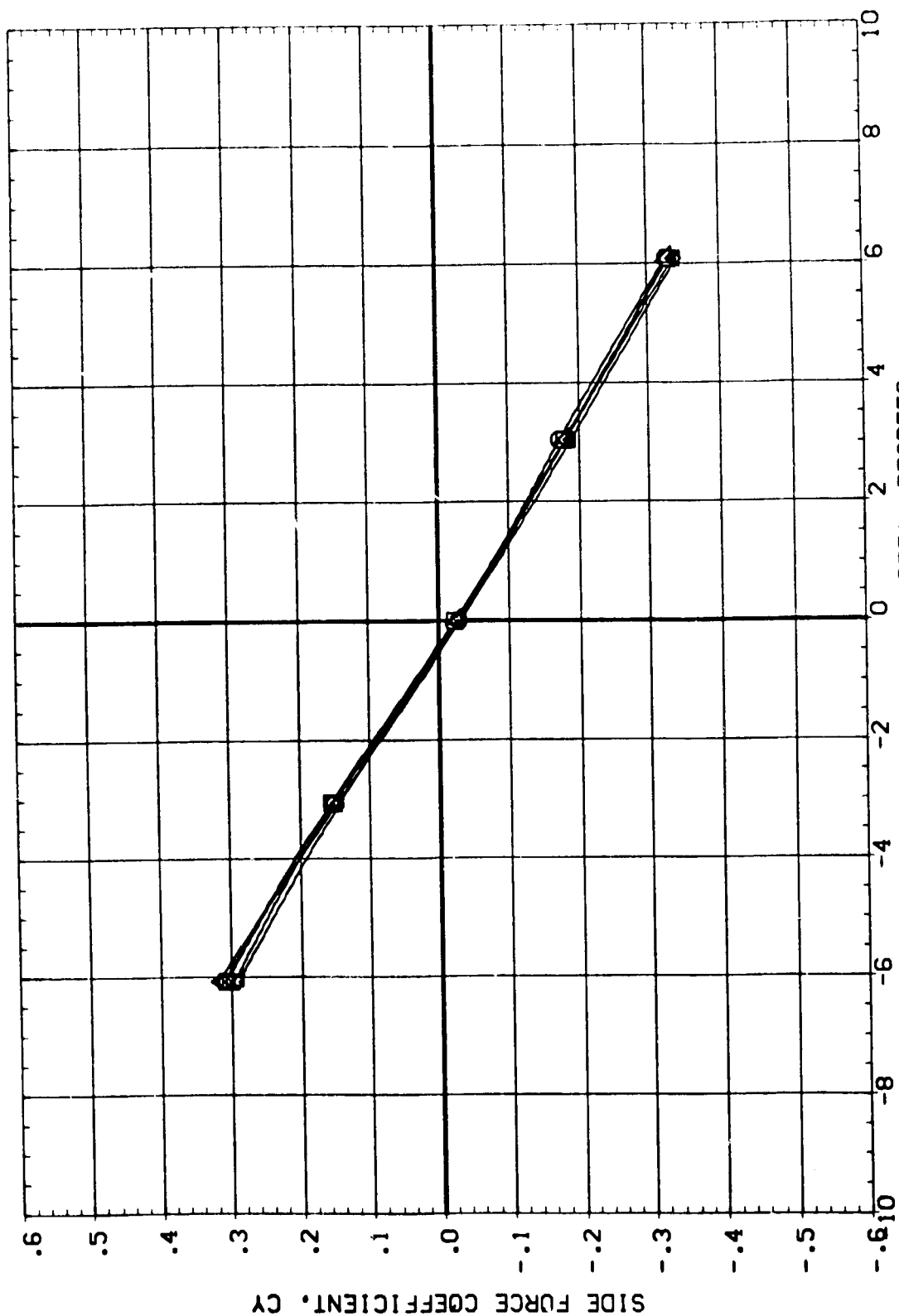


PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20



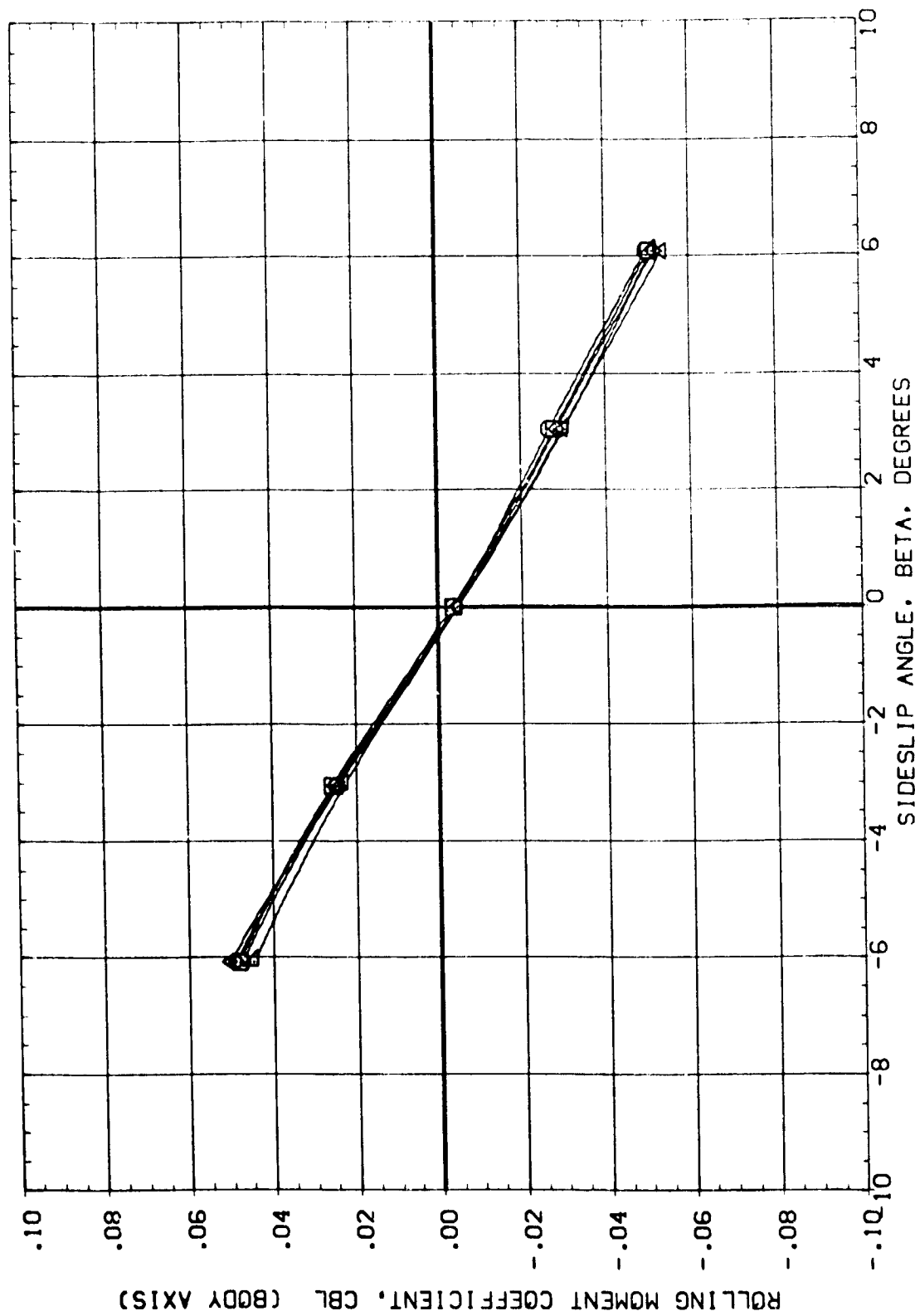
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	DI	TI	SI	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUF107)	CALSPAN T14-053	01	T1	SI	.000	.000	28.310	2.020	SREF 2690.0004 FT-SQ
(BUF108)	CALSPAN T14-053	01	T1	SI	.000	.000	28.310	2.020	LREF 1328.0002 INCHES
(BUF112)	CALSPAN T14-053	01	T1	SI	.000	.000	28.310	2.020	BREF 1328.0002 INCHES
(BUF116)	CALSPAN T14-053	01	T1	SI	.000	.000	28.310	2.020	XMRP 953.0001 INCHES
(BUF074)	CALSPAN T14-053	02	T1	SI	.000	.000	28.310	2.020	YMRP .0000 INCHES
									ZMRP 400.0000 INCHES
									SCALE .0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = .91

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(B.F.107)	CALSPAN T14-053	.000	.000	28.310	2.020	SREF 2650.0004 FT. SQ
(B.F.108)	CALSPAN T14-053	.000	.000	28.310	2.020	LREF 1328.0002 INCHES
(B.F.112)	CALSPAN T14-053	.000	.000	28.310	2.020	BREF 1328.0002 INCHES
(B.F.116)	CALSPAN T14-053	.000	.000	28.310	2.020	XMRP 953.0001 INCHES
(B.F.074)	CALSPAN T14-053	.000	.000	28.310	2.020	YMRP .0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = .91

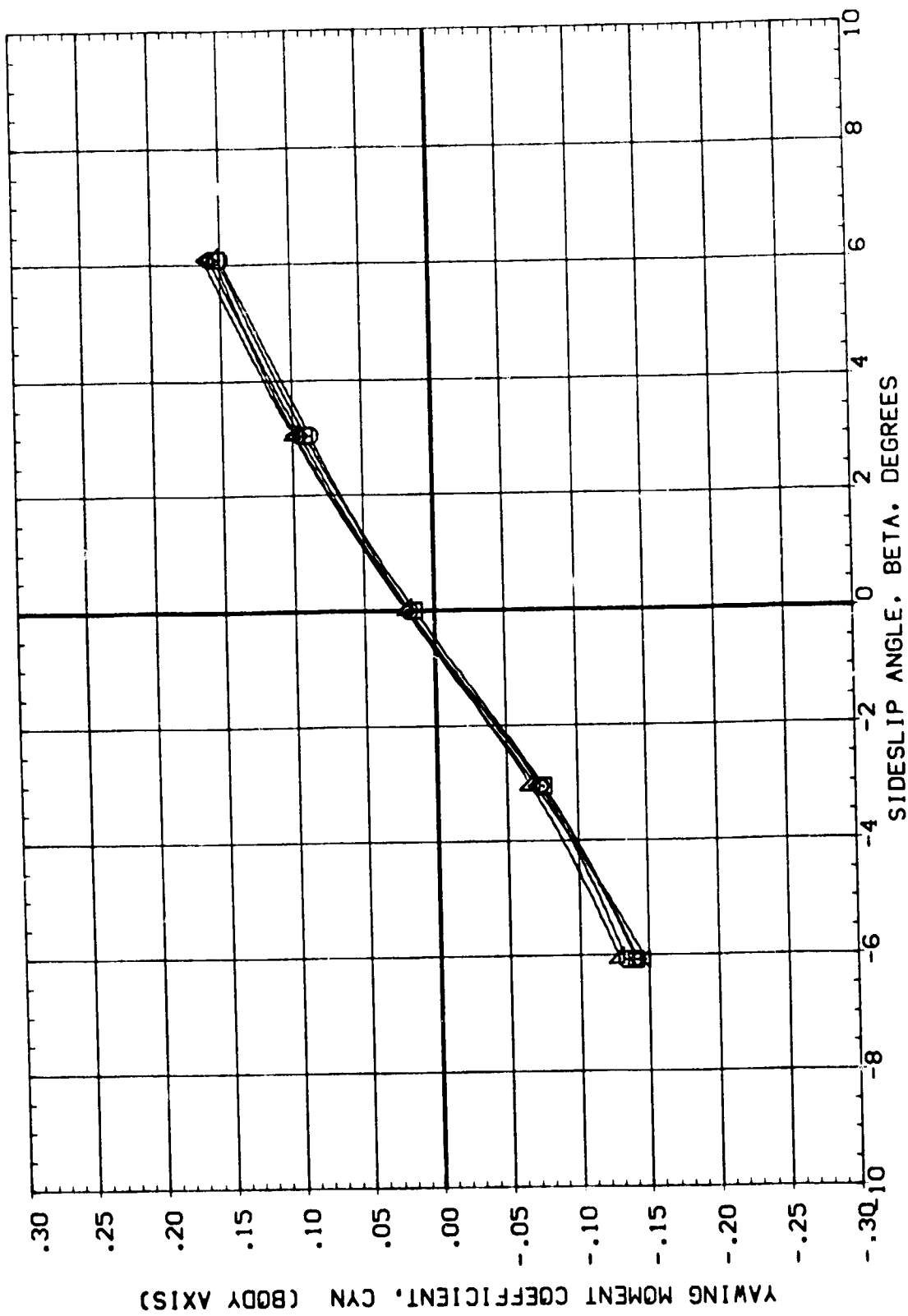
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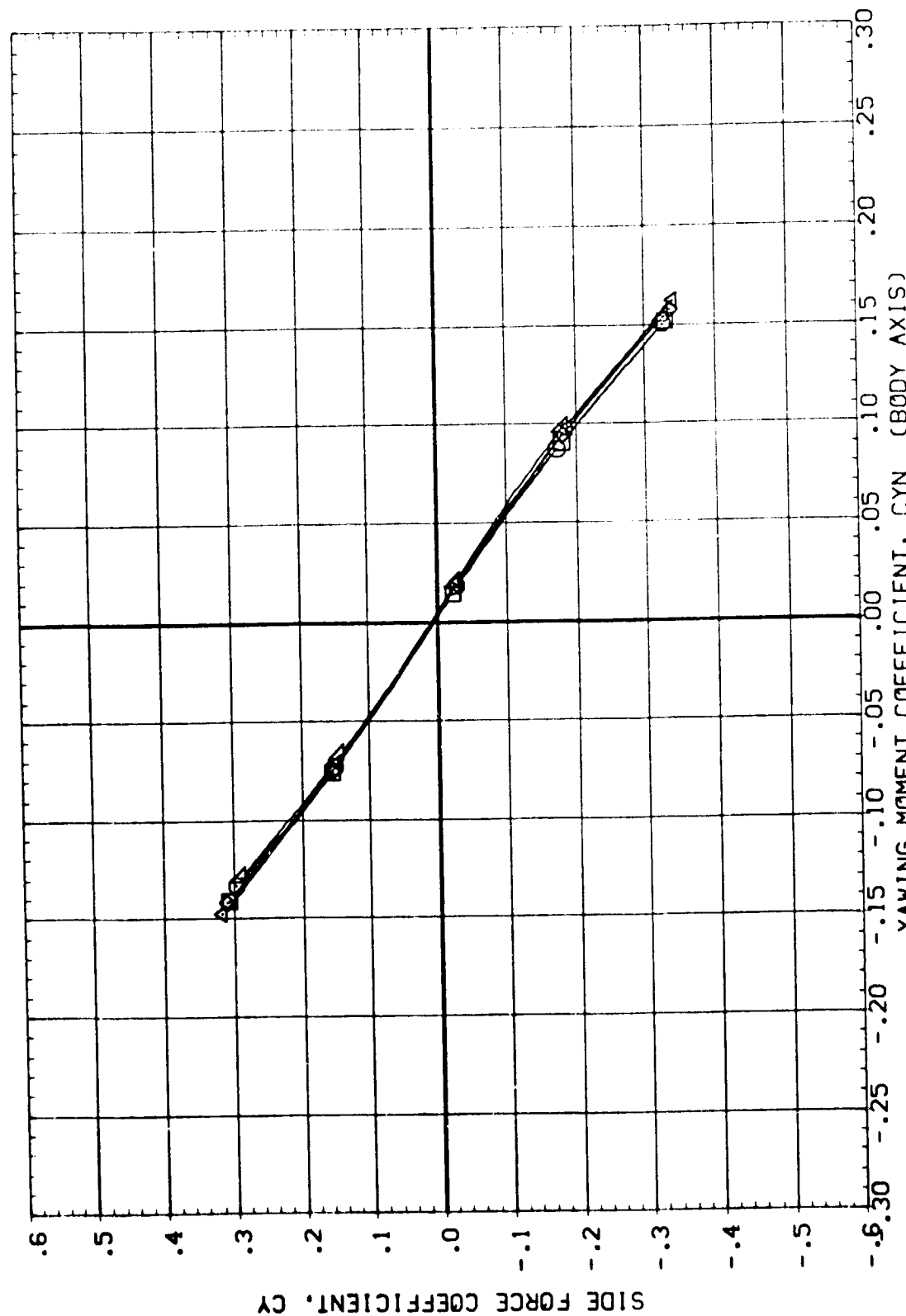


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION	FT. SQ.
(BUF107)	CALSPAN T14-053	.000	.000	28.310	2.020	SREF	2690.0004
(BUF108)	CALSPAN T14-053	.000	.000	28.310	2.020	LREF	1328.0002
(BUF112)	CALSPAN T14-053	.000	.000	28.310	2.020	BREF	1328.0002
(BUF116)	CALSPAN T14-053	.000	.000	28.310	2.020	XMRP	953.0001
(BUF074)	CALSPAN T14-053	.000	.000	28.310	2.020	YMRP	400.0000
						ZMRP	400.0000
						SCALE	.0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUF107)	CALSPAN T14-053	.000	.000	28.310	2.020	SREF 2690.0004 FT.502
(BUF108)	CALSPAN T14-053	.000	.000	28.310	2.020	LREF 1328.0002 INCHES
(BUF112)	CALSPAN T14-053	.000	.000	28.310	2.020	BREF 1328.0002 INCHES
(BUF116)	CALSPAN T14-053	.000	.000	28.310	2.020	XMRP 953.0001 INCHES
(BUF074)	CALSPAN T14-053	.000	.000	28.310	2.020	YMRP 400.0000 INCHES
						ZMRP 400.0000 INCHES
						SCALE .0190

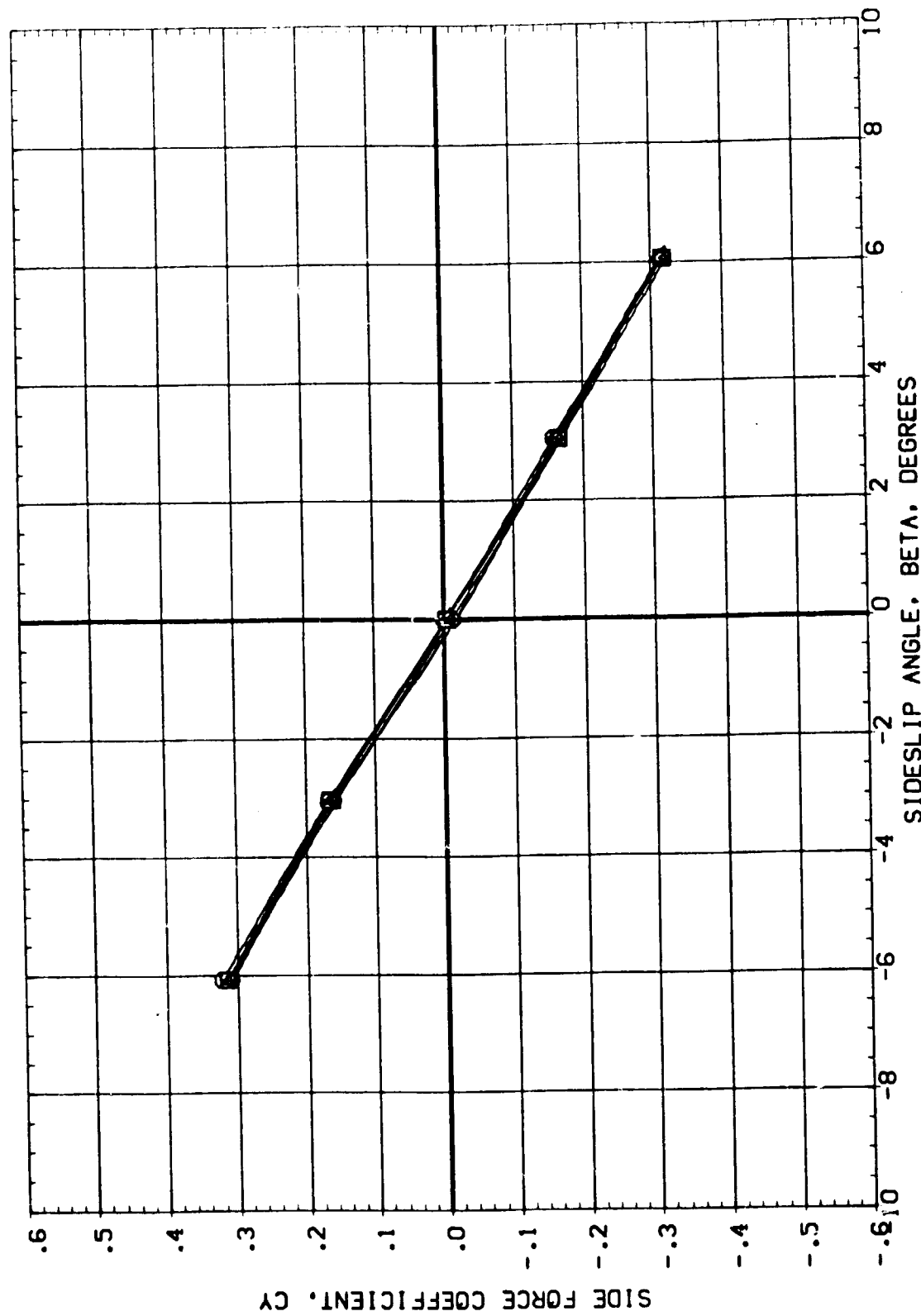


PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = .91



DATA SET SYMBOL	CONF IGURATION DESCRIPTION	IA36	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUF 06)	CALSPAN T14-053	IA36	.000	.000	36.200	2.330	SREF 2690.0004 FT. SGU
(BUF 05)	CALSPAN T14-053	IA36	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(BUF 110)	CALSPAN T14-053	IA36	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(BUF 114)	CALSPAN T14-053	IA36	.000	.000	36.200	2.330	YMRP 953.0001 INCHES
(BUF 078)	CALSPAN T14-053	IA36	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
							SCALE .0190



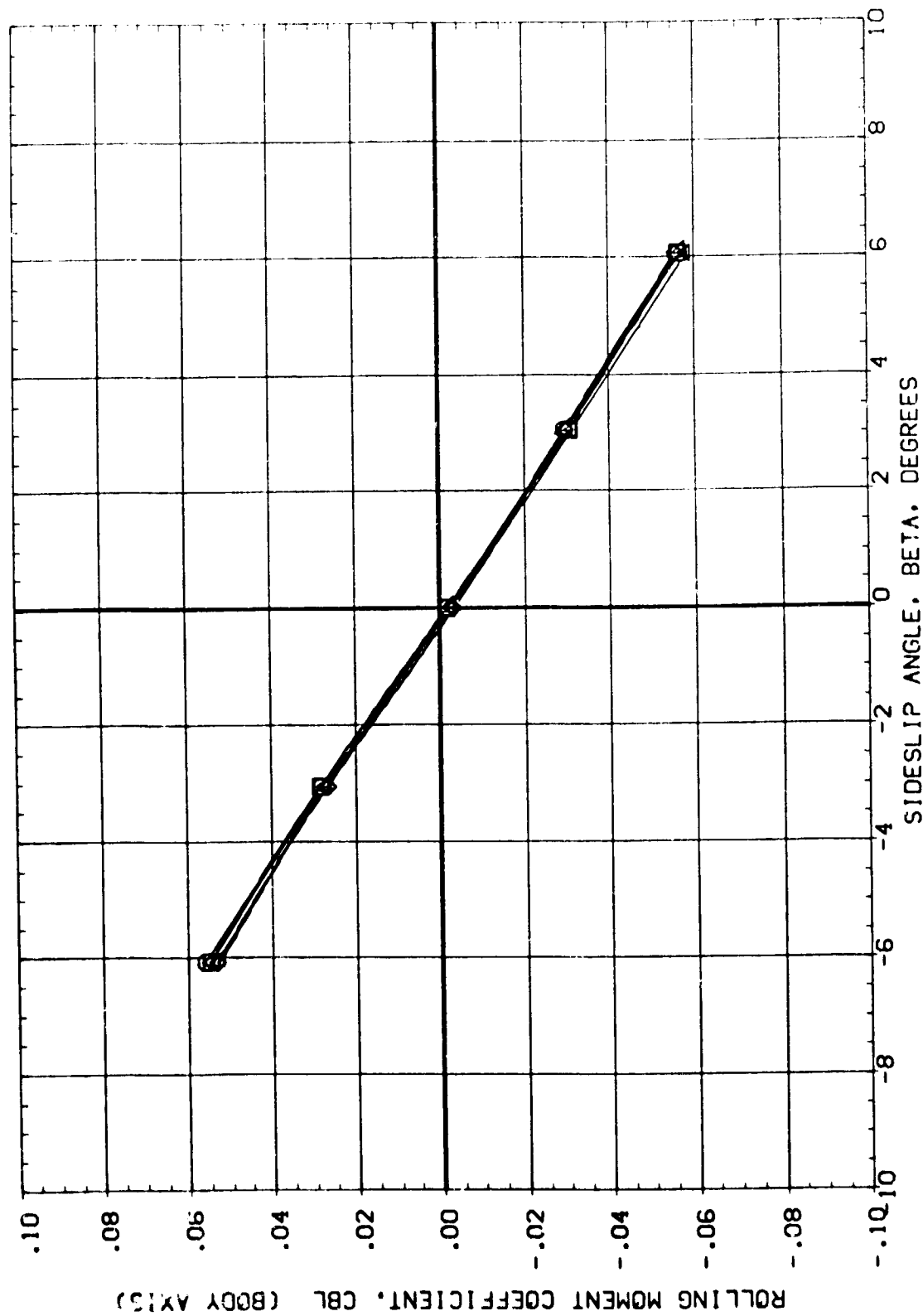
PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = 1.17 (B) 1.21

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51

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RULDER	QPR	SRMPR	REFERENCE INFORMATION
BF106	CALSPAN T14-053	.000	.000	36.200	2.330	SREF 2690.0004 FT. SQ.
BF105	CALSPAN T14-053	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
BF110	CALSPAN T14-053	.000	.000	36.200	2.330	BREF 953.0001 INCHES
BF114	CALSPAN T14-053	.000	.000	36.200	2.330	YMRP .0000 INCHES
BF078	CALSPAN T14-053	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
						SCALE .0190

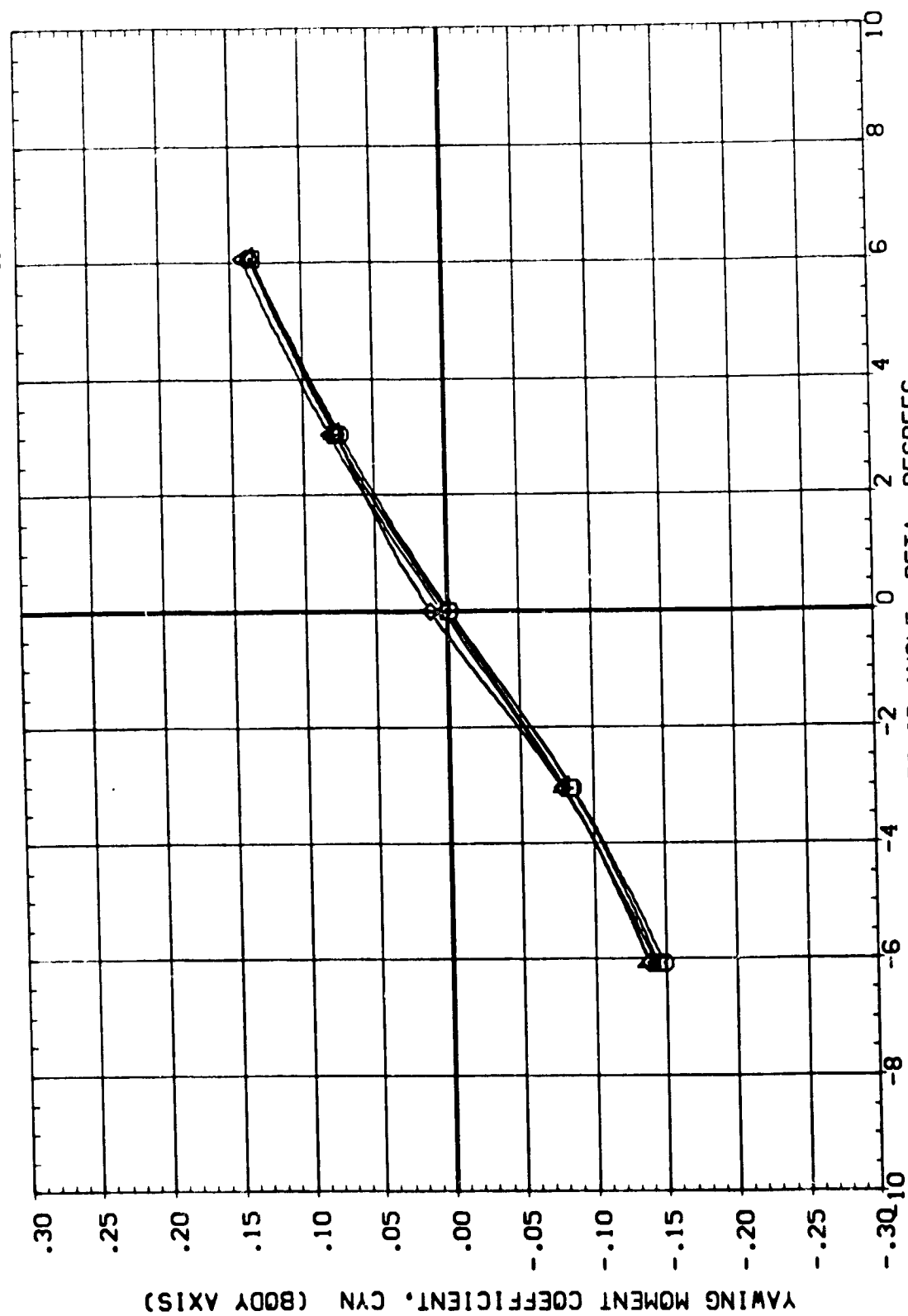


# PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = 1.17 (B) 1.21



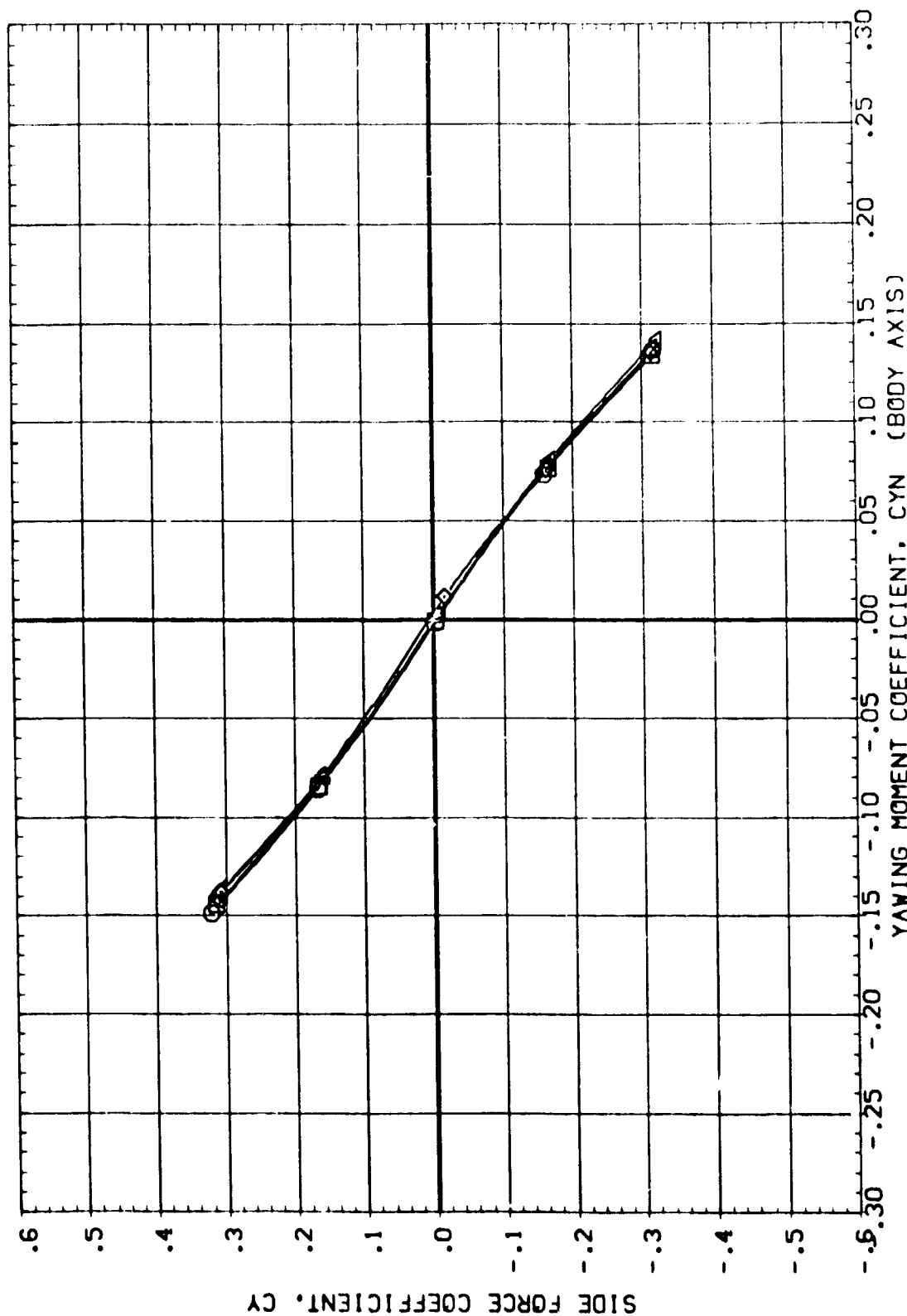
DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ALPHA	RUDDER	OPR	SRMPR	REFERENCE INFORMATION
(BUF106)	□	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	SREF 2690.0004 FT. SQ
(BUF105)	◇	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(BUF110)	◇	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(BUF114)	◇	CALSPAN T14-053	01 T1 S1	.000	.000	36.200	2.330	YMRP 953.0001 INCHES
(BUF078)	◇	CALSPAN T14-053	02 T1 S1	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
								SCALE .0190



PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A) MACH = 1.17 (B) 1.21

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	DPR	SRMPR	REFERENCE INFORMATION
(B.F.106)	CALSPAN T14-053	.000	.000	36.200	2.330	SREF 2690.0004 FT. SQU
(B.F.105)	CALSPAN T14-053	.000	.000	36.200	2.330	LREF 1328.0002 INCHES
(B.F.110)	CALSPAN T14-053	.000	.000	36.200	2.330	BREF 1328.0002 INCHES
(B.F.114)	CALSPAN T14-053	.000	.000	36.200	2.330	YMRP 953.0001 INCHES
(B.F.078)	CALSPAN T14-053	.000	.000	36.200	2.330	ZMRP 400.0000 INCHES
						SCALE .0190

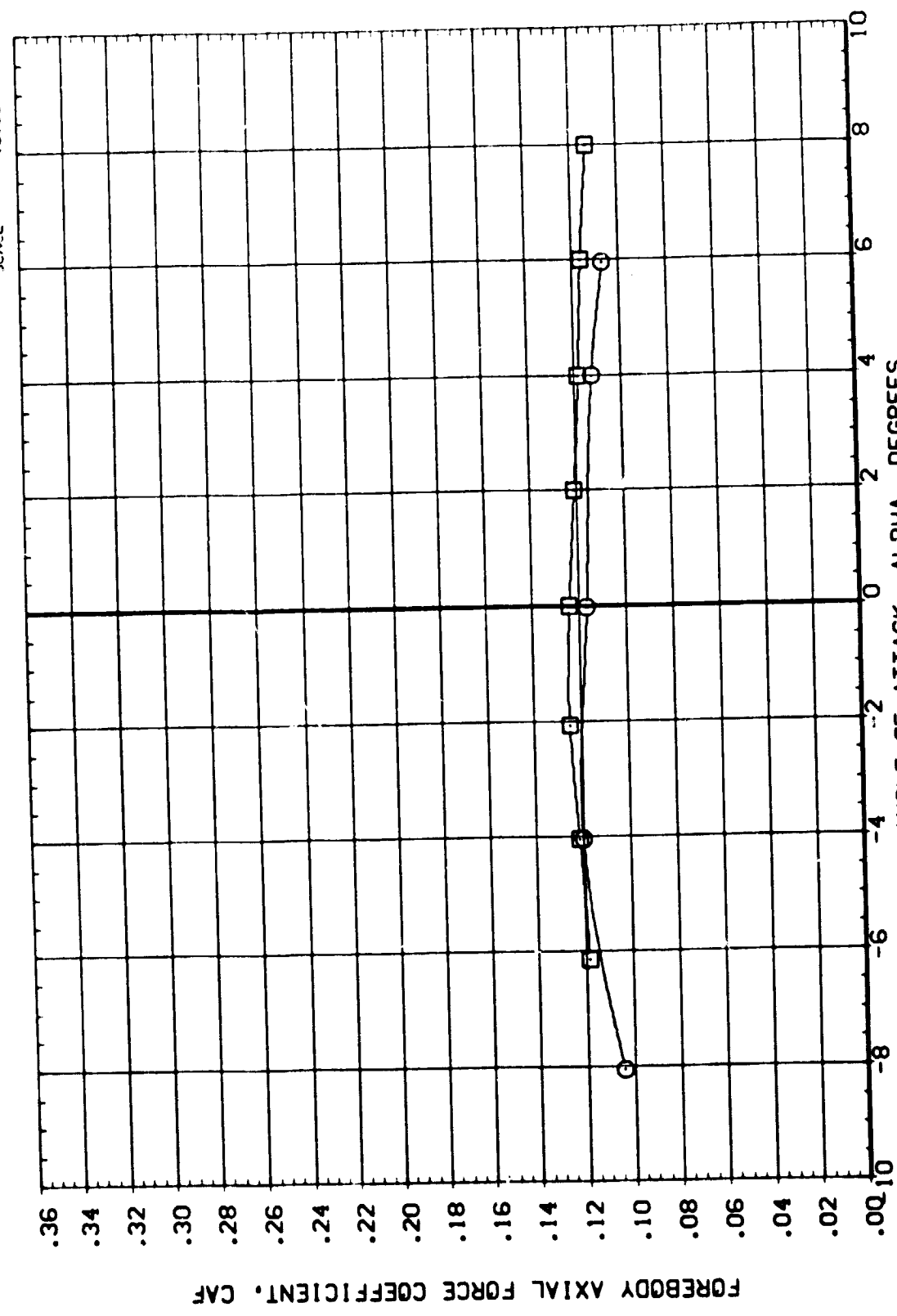


PLUME SIZE AND NOZZLE GIMBAL ANGLE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = 1.17 (B) 1.21



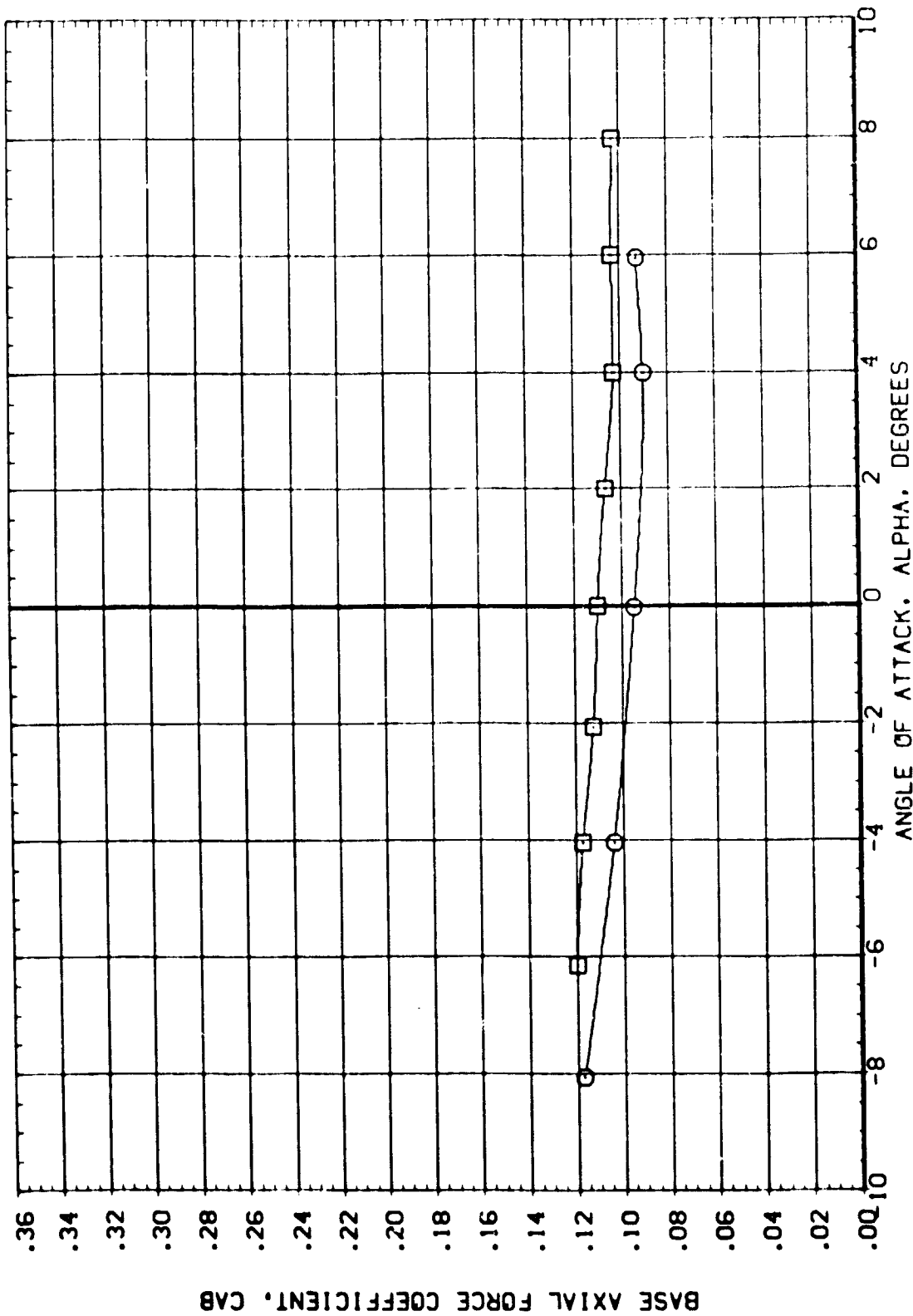
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(BUF088)	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. SQU
(BUF119)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP 400.0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(B) (B) (B)	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. SGJ
(B) (B) (B)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP .0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



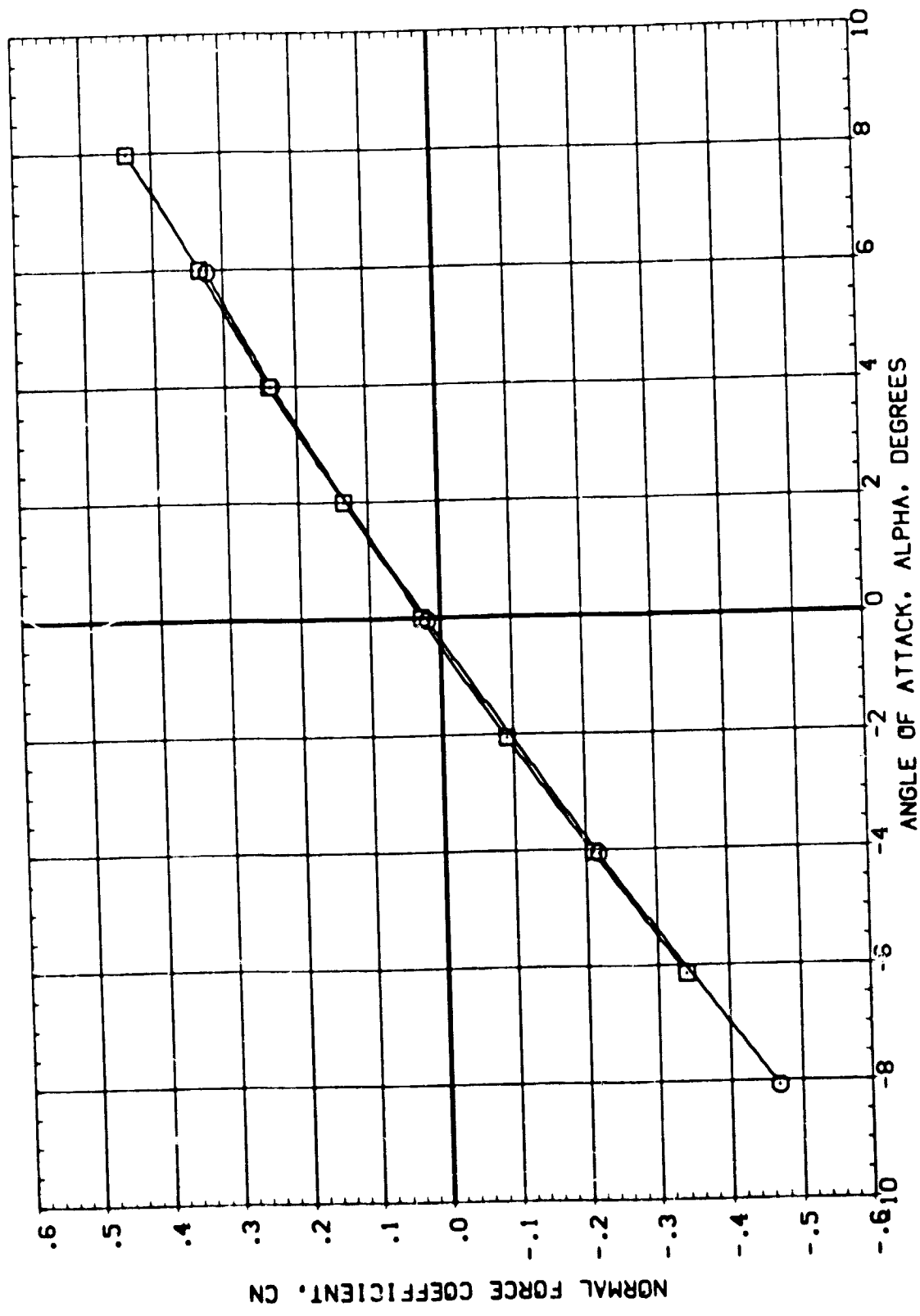
HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90





DATA SET SYMBOL	CONFURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(BUFO88)	CALSPAN T14-053	.000	.000	SRE: 2690.0004 FT. SOL
(S.F.119)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP .0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



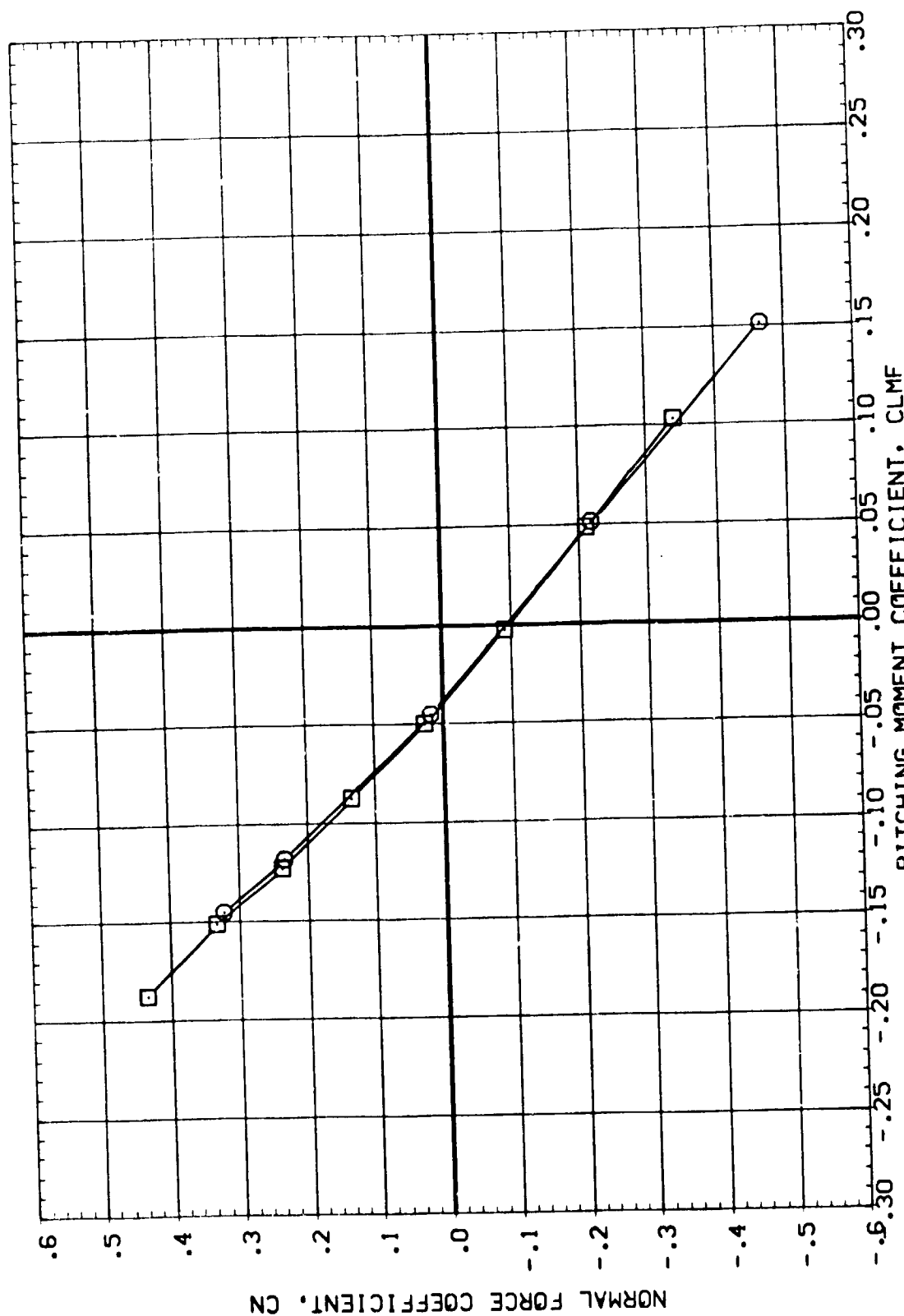
HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90





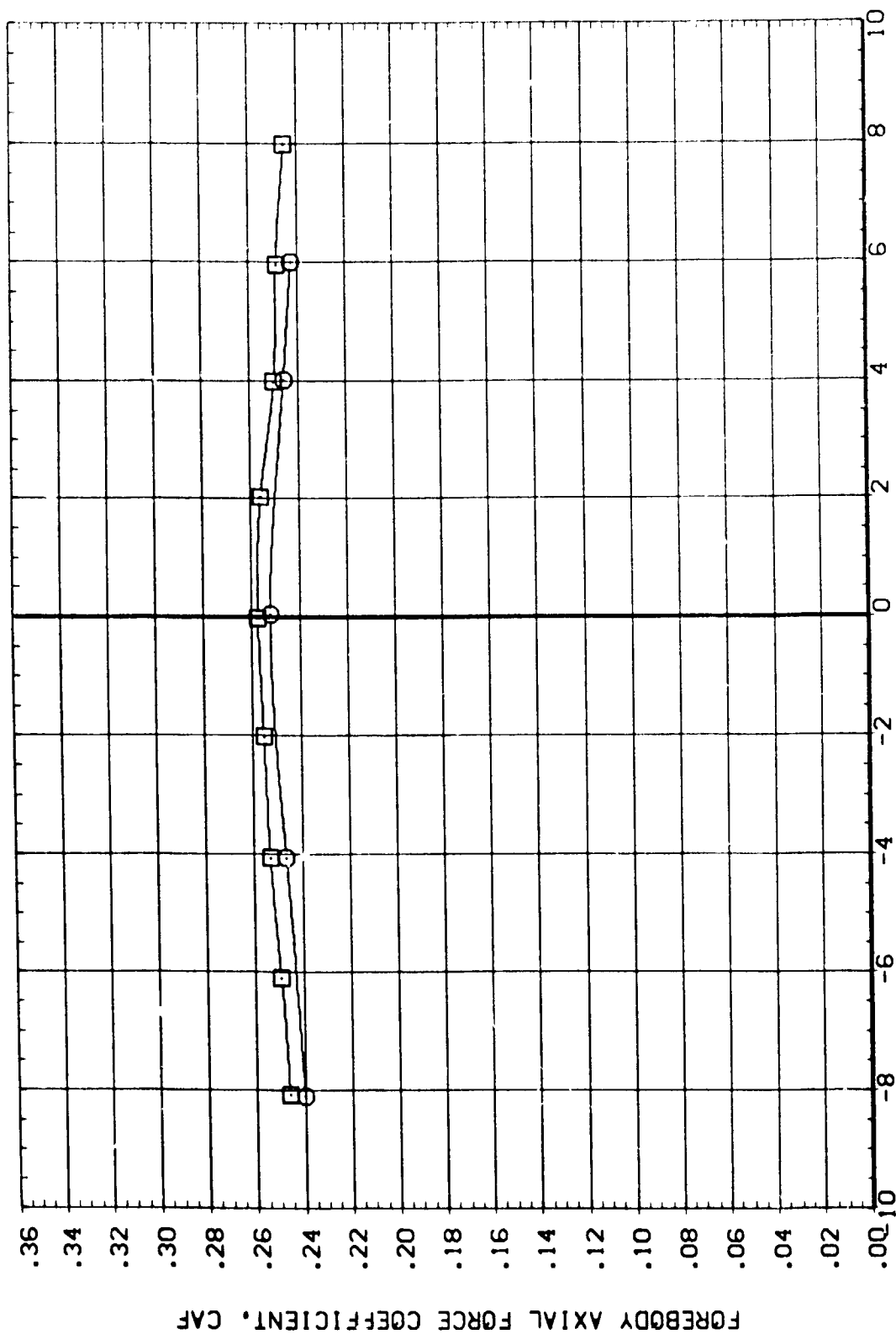
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(B)F088)	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT SQ
(B)F119)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP .0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = .90

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(B.F.0811)	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. SQ
(B.F.117)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP .0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190

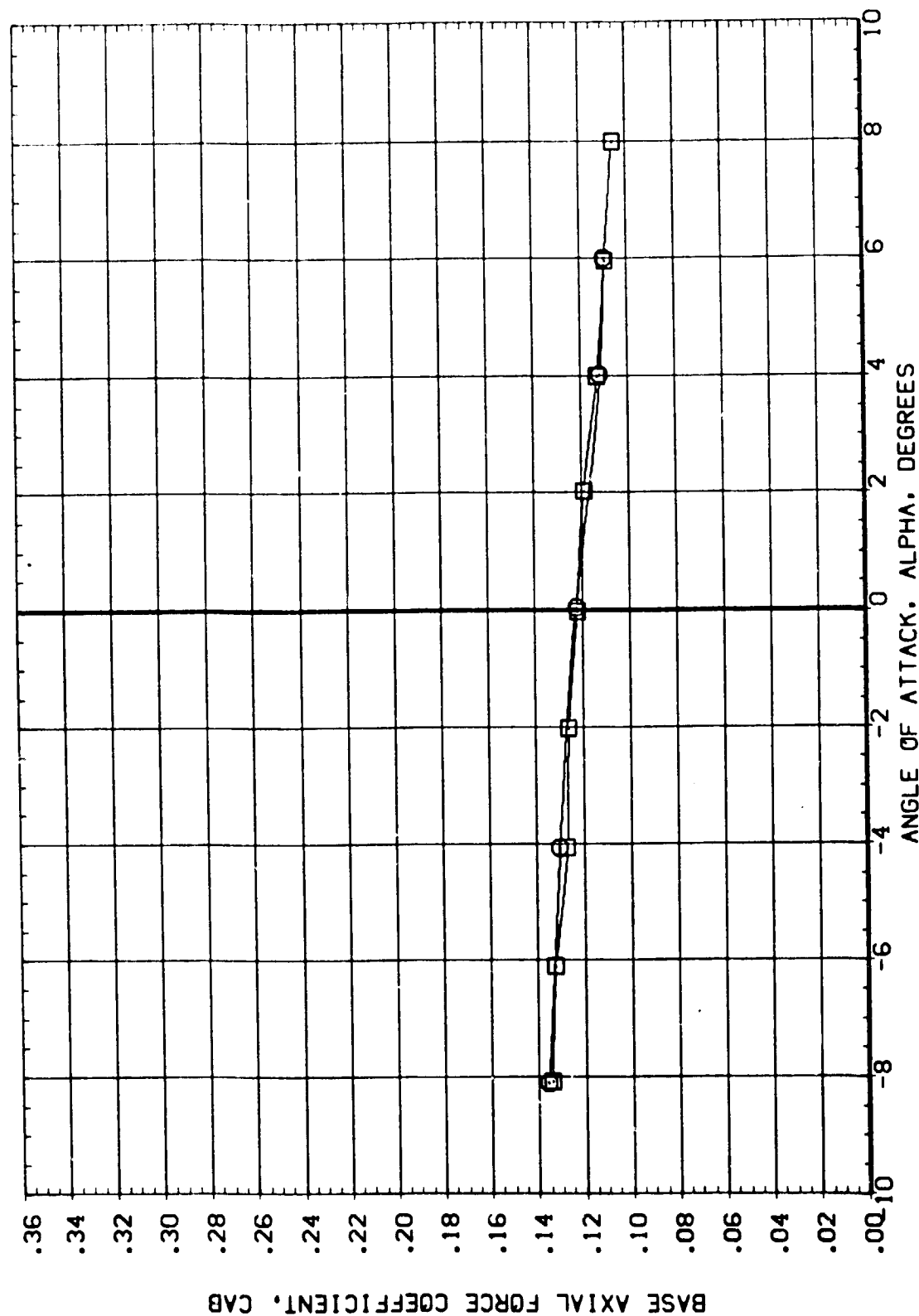


HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A) MACH = 1.20



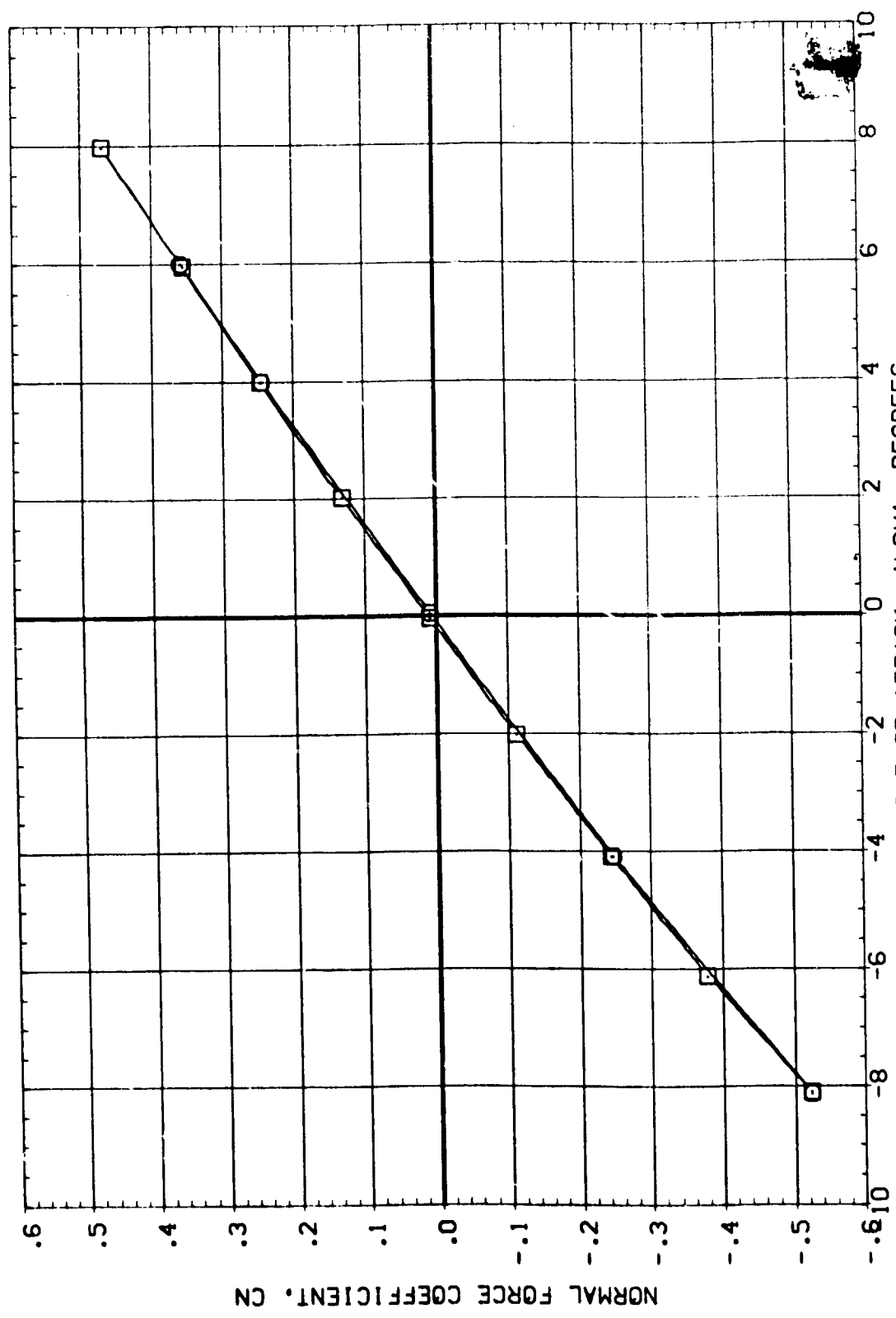
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(BUFD81)	CA LSPAN T14-053	.000	.000	SREF 2690.0004 FT. SQ
(BUFI17)	CA LSPAN T14-053	.000	.000	LREF 1378.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP 400.0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A) MACH = 1.20

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
8-F0811	CALSPAN T14-053	.000	.000	SREF 2630.0004 FT.SQU
8-F1171	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP .0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190

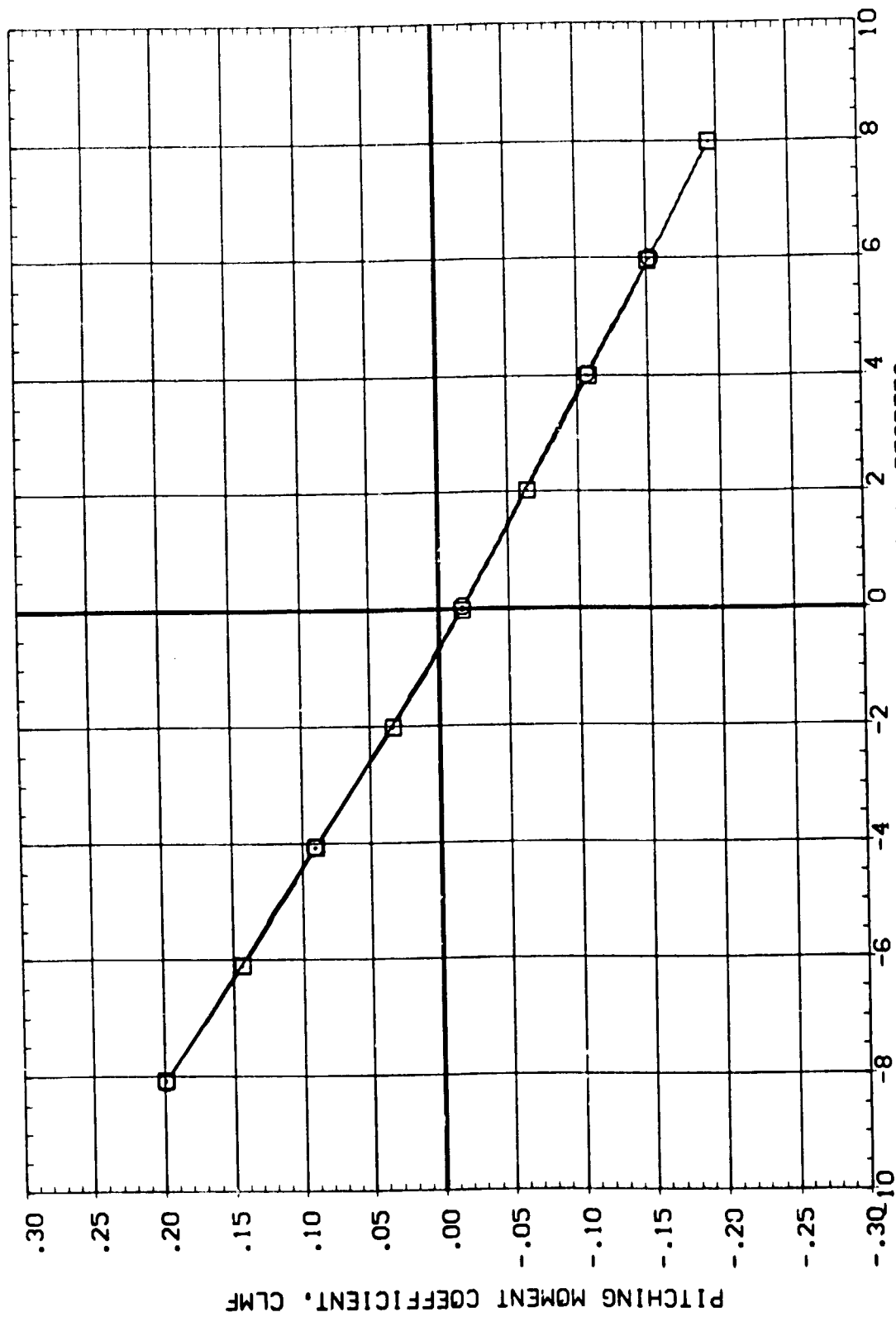


HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	RUDDER	REFERENCE INFORMATION
(BUFO81)	01 T1 S1	.000	.000	SREF 2690.0004 FT.SQU
(BUF117)	01 T1 S1	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMPP 953.0001 INCHES
				YMRP 400.0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



# HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20

DATA SET SYMBOL (B)F0811  
(B)F117

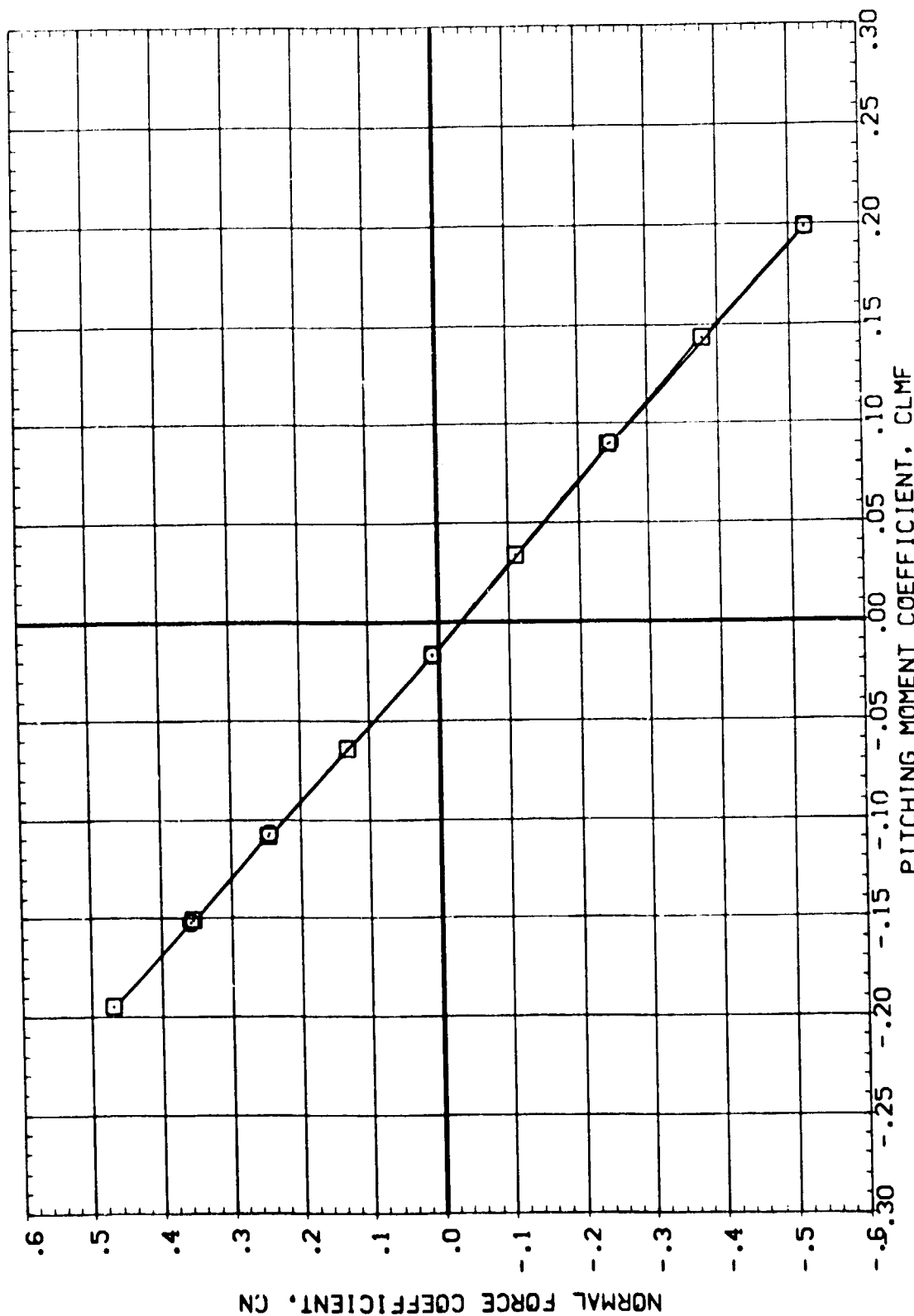
CONFIGURATION DESCRIPTION  
CALSPAN T14-053  
CALSPAN T14-053

01 T1 S1  
01 T1 S1

1A36  
1A36

BETA .000  
RUDDER .000

REFERENCE INFORMATION  
SREF 2690.0004 FT. SQ  
LREF 1328.0002 INCHES  
BREF 1328.0002 INCHES  
XMRP 953.0001 INCHES  
YMRP .0000 INCHES  
ZMRP 400.0000 INCHES  
SCALE .0190



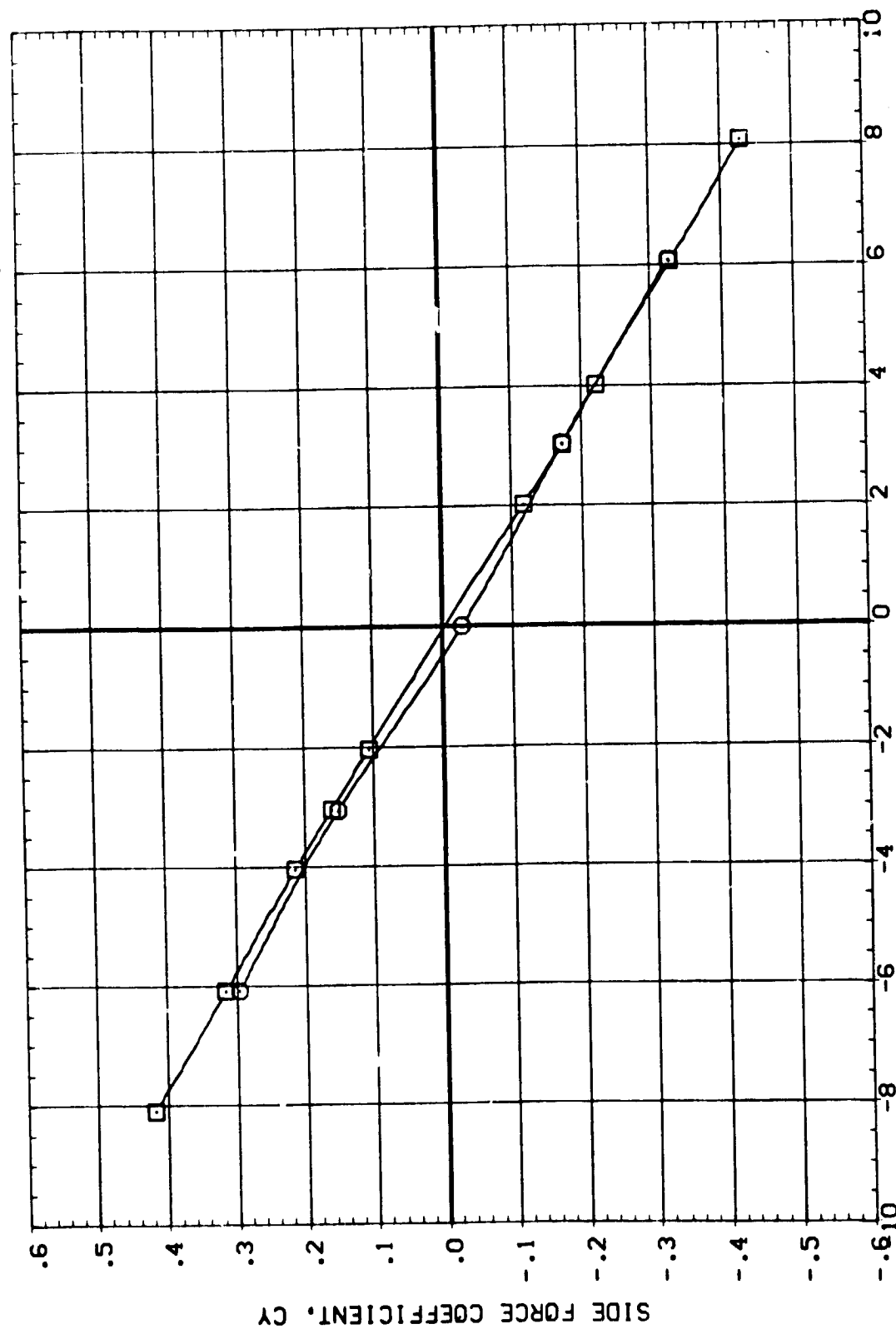
HOSE AND STING HARDWARE EFFECTS ON LONGITUDINAL CHARACTERISTICS

(A)MACH = 1.20





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	REFERENCE INFORMATION
(BUF107)	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. SOU
(BUF120)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP .0000 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

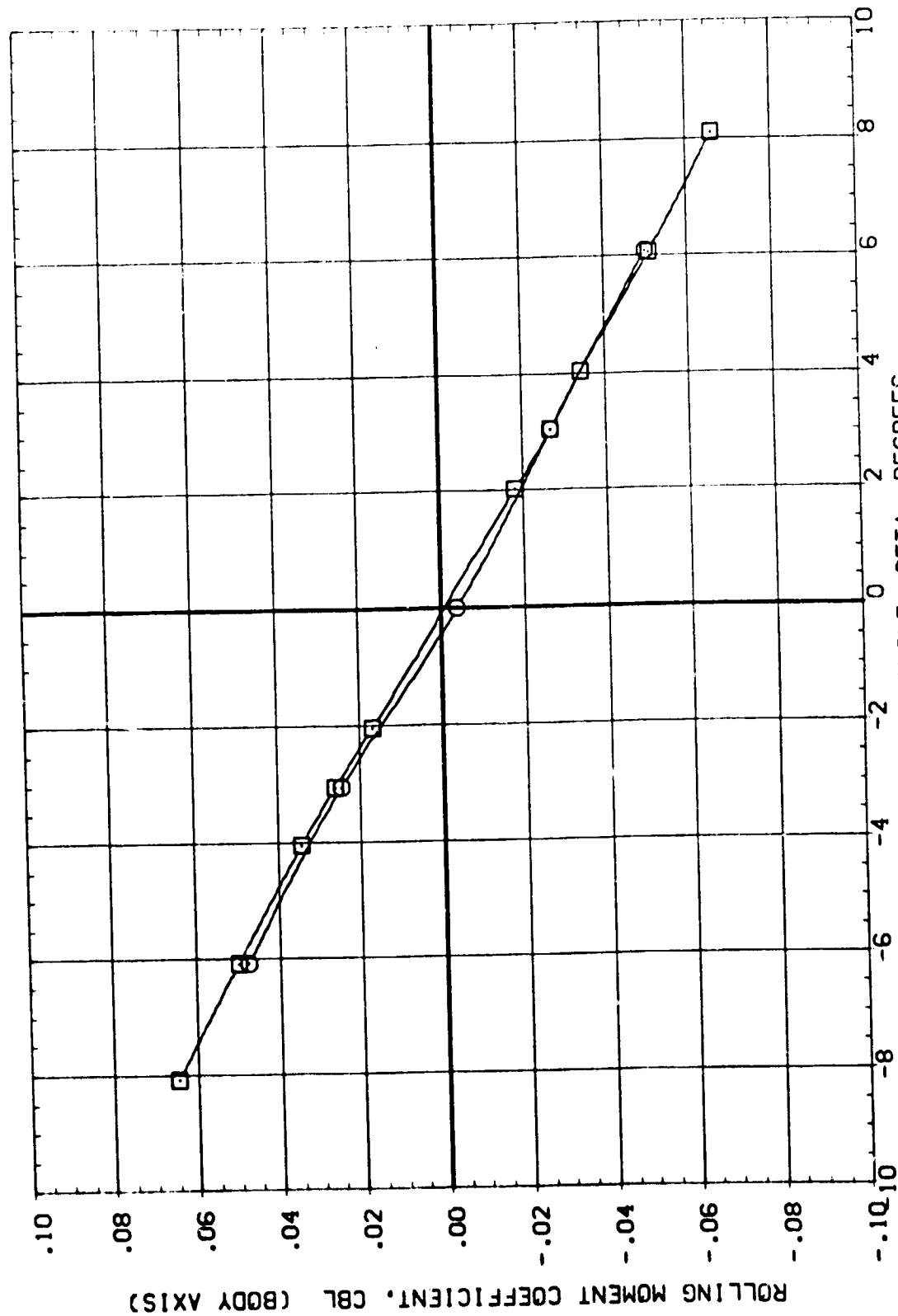
(A)MACH = .91

REFERENCE INFORMATION  
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 LREF 1328.0002 INCHES  
 BREF 1328.0002 INCHES  
 XMRP 953.0001 INCHES  
 YMRP 400.0000 INCHES  
 ZMRP 400.0000 INCHES  
 SCALE .0190

ALPHA RUDDER  
 .000 .000  
 .000 .000

A36  
 A36

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (PJ107) CALSPAN T14-053 01 T1 S1  
 (BJ120) CALSPAN T14-053 01 T1 S1

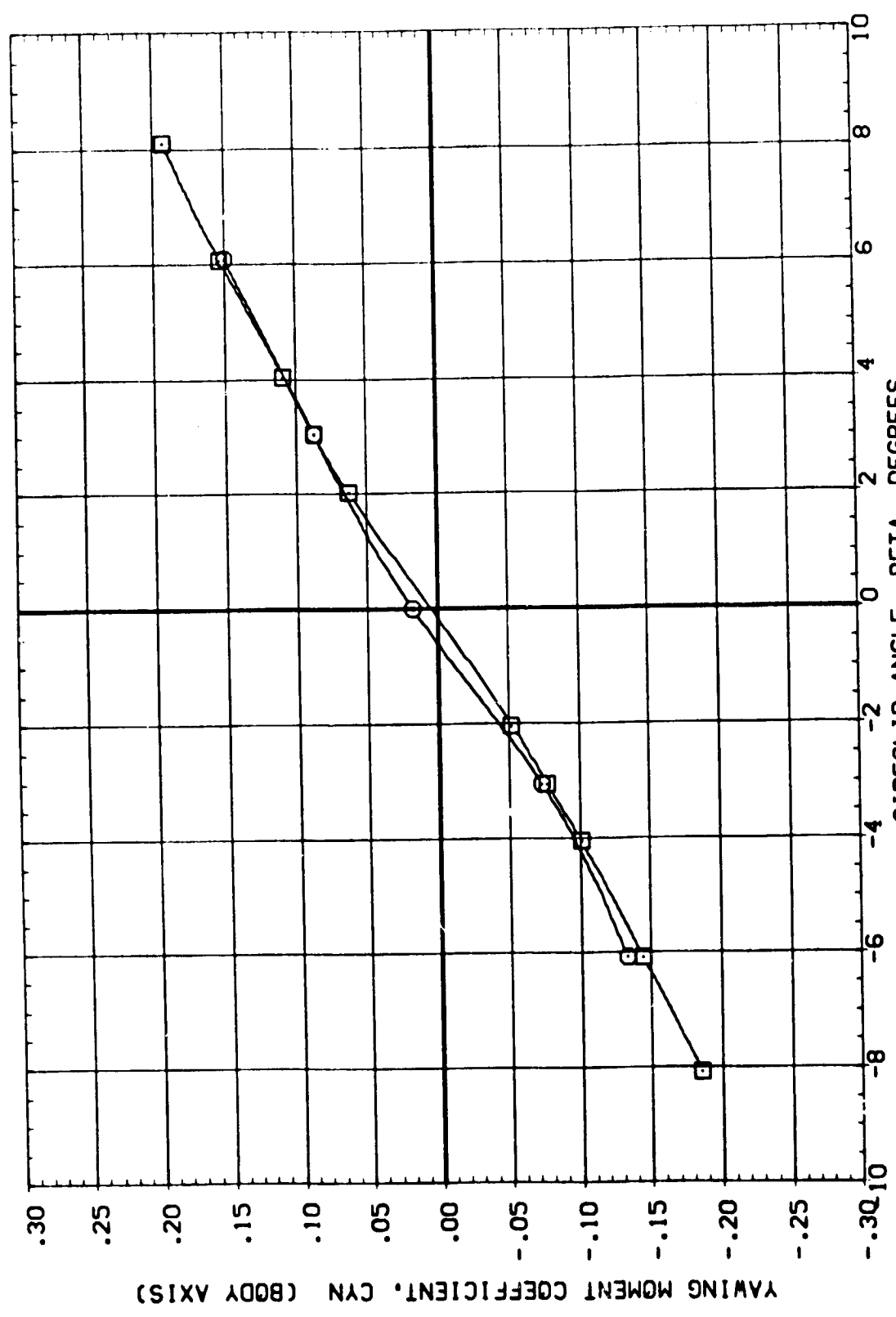


HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = .91



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	REFERENCE INFORMATION
18J1071	01 T1 S1	.000	.000	SREF 2690.0004 FT. SQU
(BUF1201)	01 T1 S1	.000	.000	LREF 1328.0002 INCHES
	CALSPAN T14-053			BREF 1328.0002 INCHES
	CALSPAN T14-053			XMRP 953.0001 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190



HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = .91

DATA SET SYMBOL  
 8  
 (B) (107)  
 (B) (20)

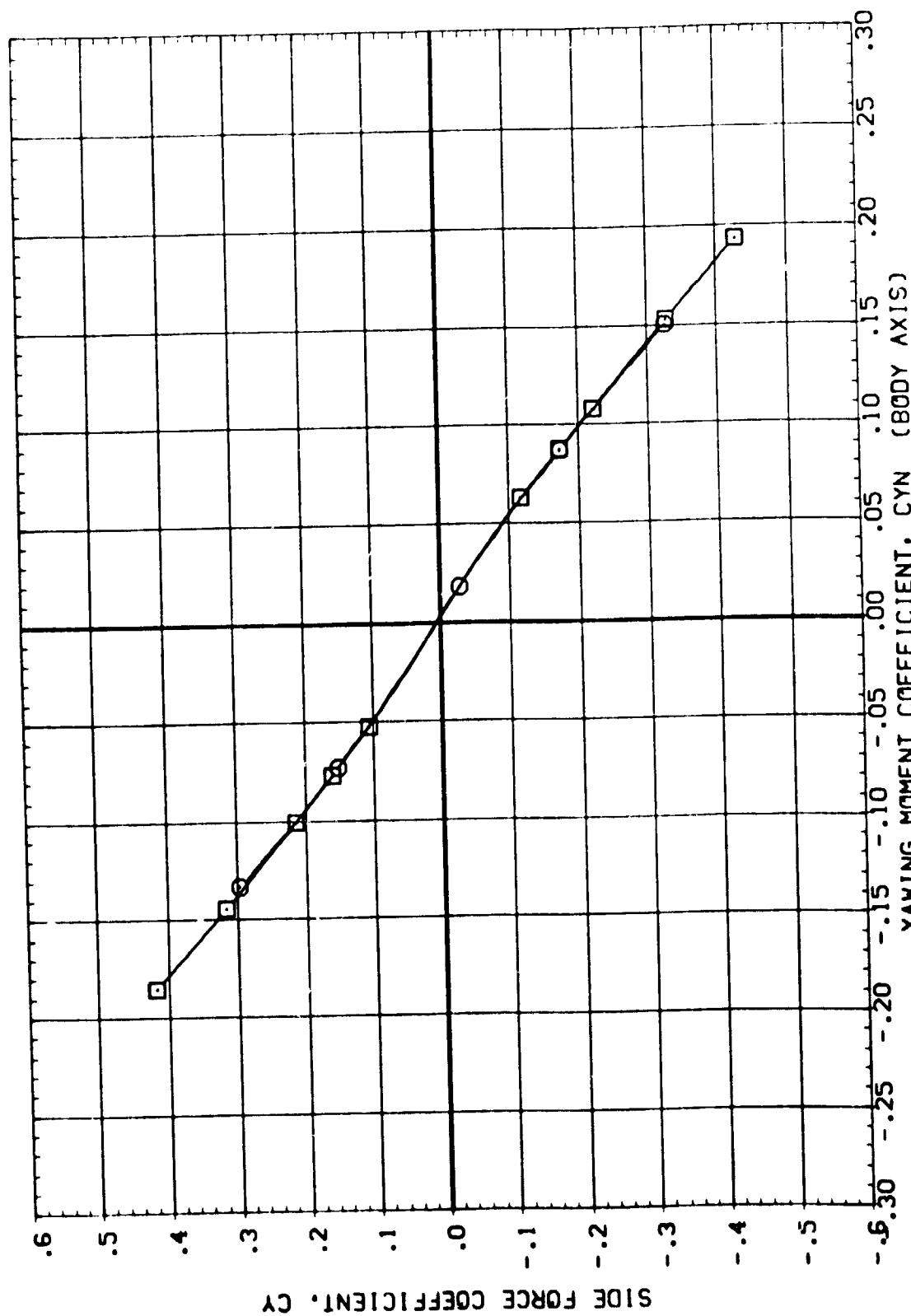
CONFIGURATION DESCRIPTION  
 CALSPAN T14-053  
 CALSPAN T14-053

1A36  
 1A36

ALPHA  
 .000  
 .000

RUDDER  
 .000  
 .000

REFERENCE INFORMATION  
 SREF 2690.0004 FT. SQ  
 LREF 1328.0002 INCHES  
 BREF 1328.0002 INCHES  
 XMRP 953.0001 INCHES  
 YMRP 400.0000 INCHES  
 ZMRP 400.0000 INCHES  
 SCALE .0190

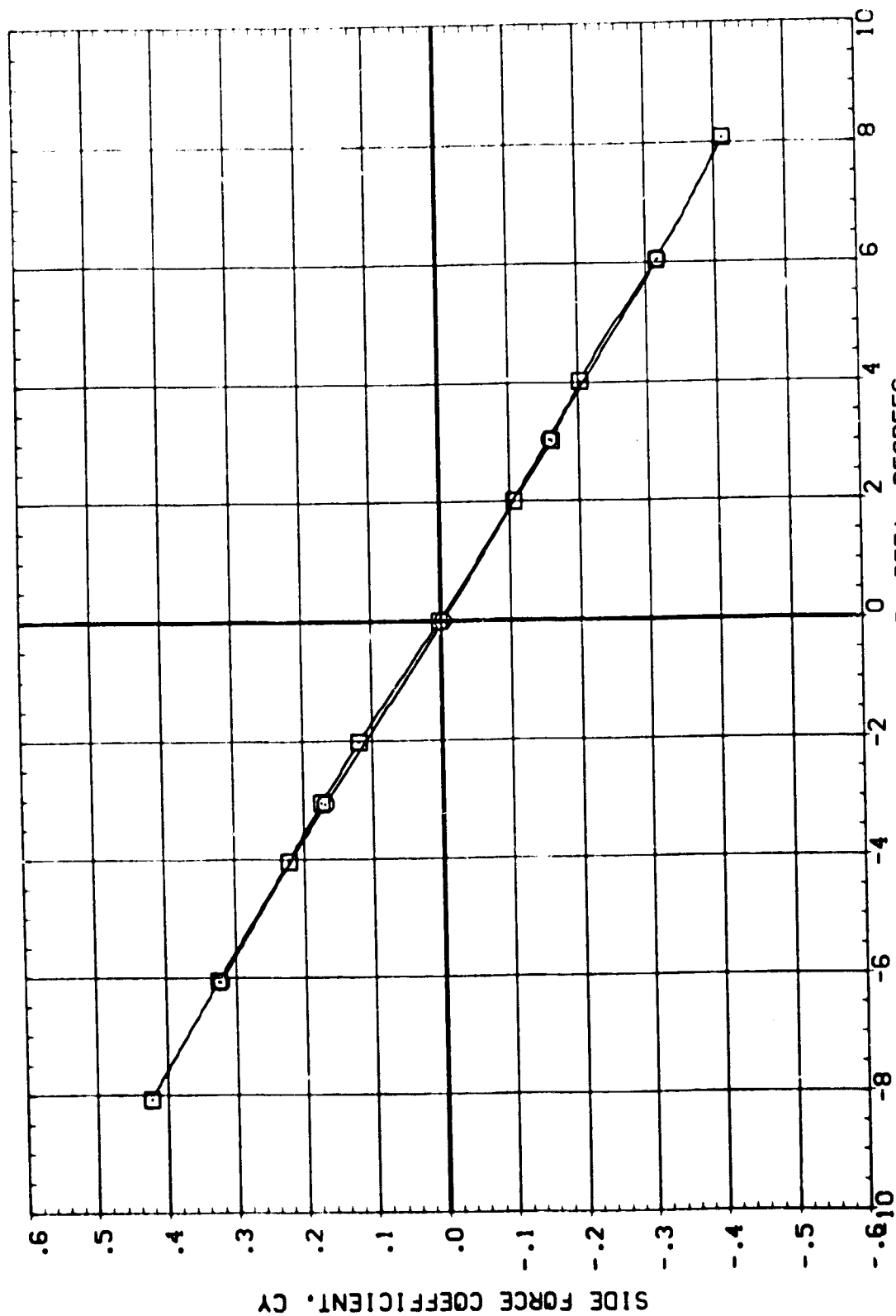


HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

(A) MACH = .91



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	REFERENCE INFORMATION
(B)F1061	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. SQ
(B)F1181	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				XMRP 953.0001 INCHES
				YMRP 5530 INCHES
				ZMRP 400.0022 INCHES
				SCALE .0190



HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = 1.21

REFERENCE INFORMATION

SREF	2690.0004	FT. SQ
LREF	1328.0002	INCHES
BREF	1328.0002	INCHES
XMRP	953.0001	INCHES
YMRP	000.0000	INCHES
ZMRP	400.0000	INCHES
SCALE	00190	

ALPHA RUDDER

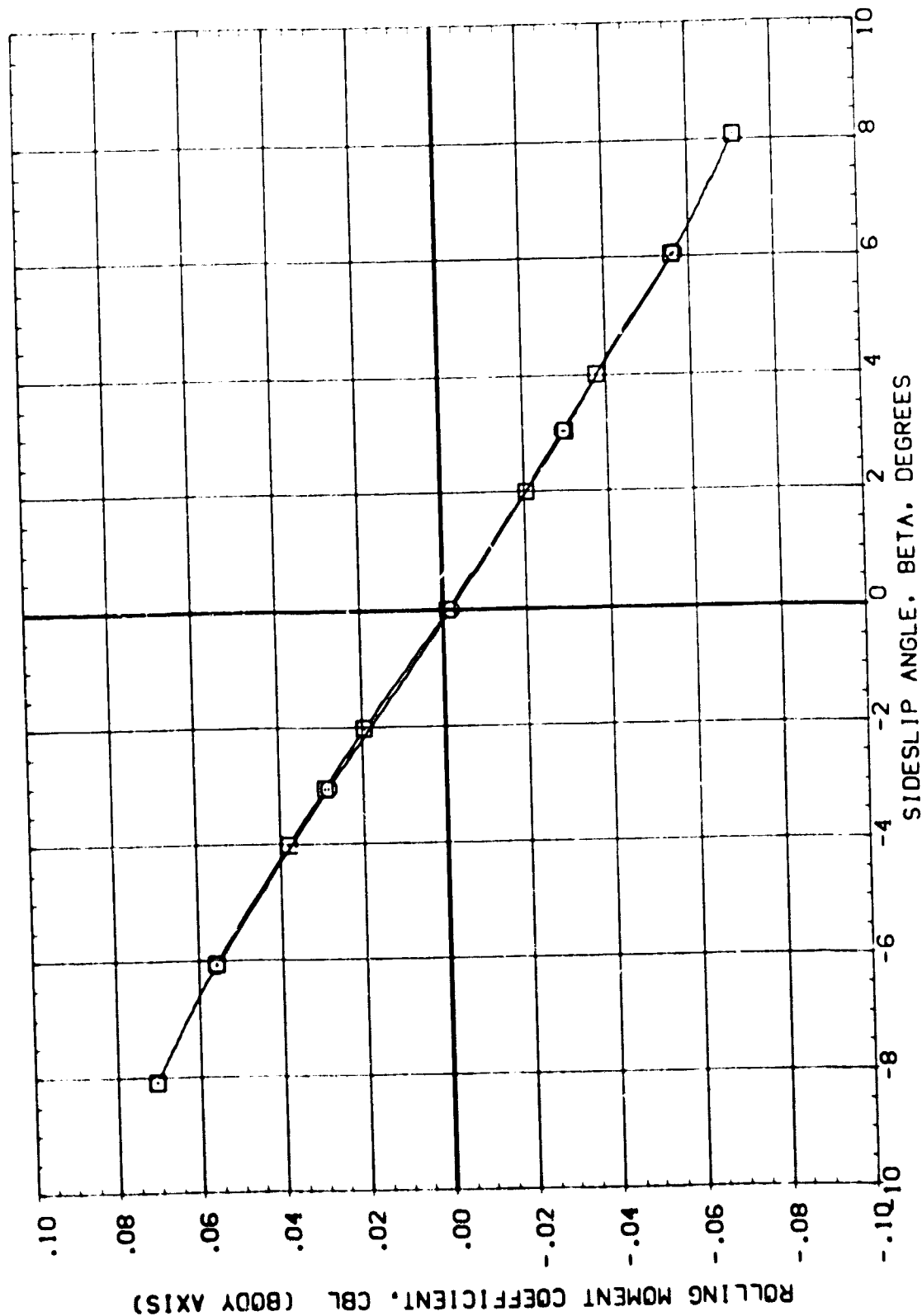
ALPHA	.000
RUDDER	.000

1A36  
1A36

01 T1 S1  
01 T1 S1

CALSPAN 114-053  
CALSPAN 114-053

DATA SET SYMBOL  
P.F.1061  
B.F.1181

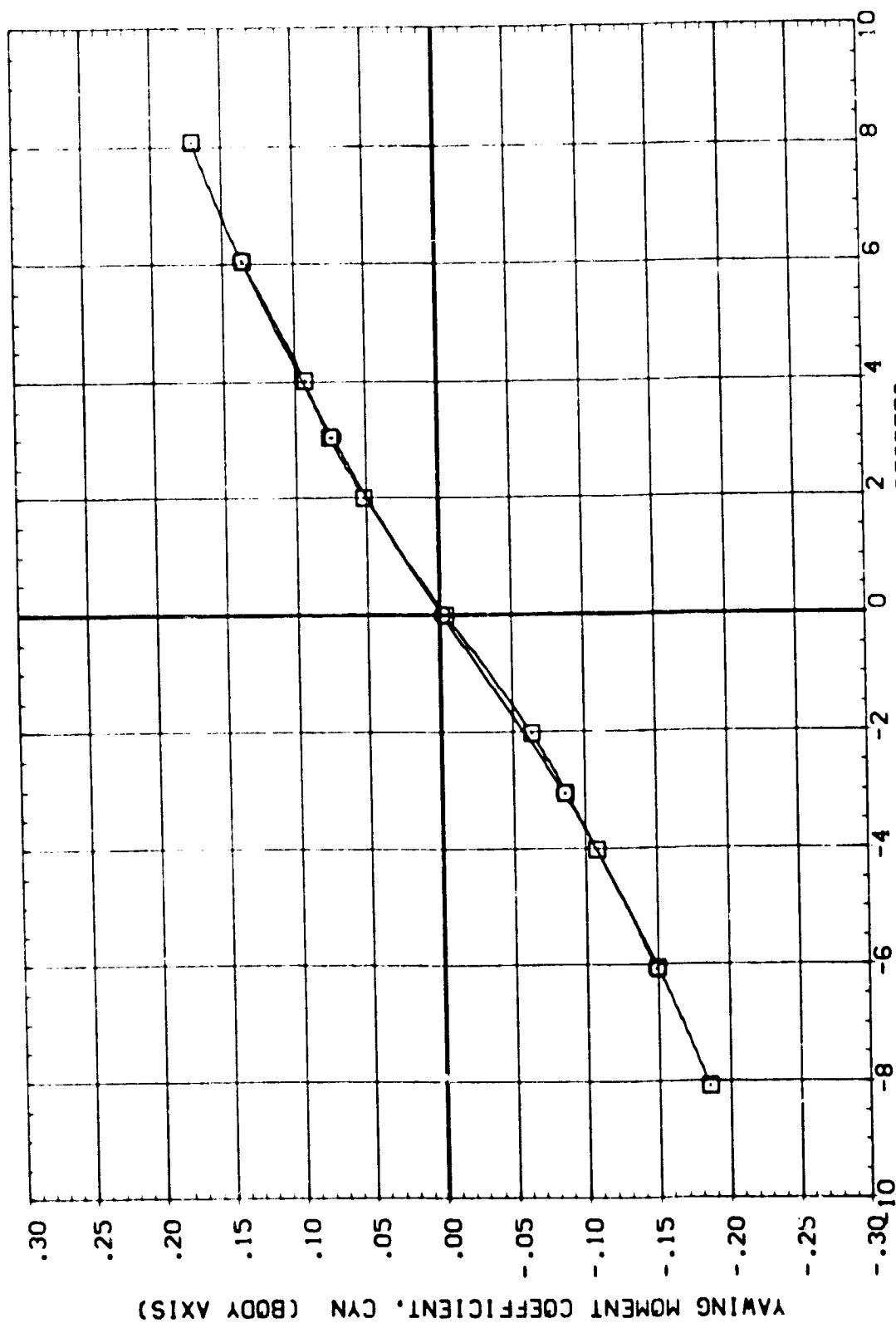


HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

(A)MACH = 1.21



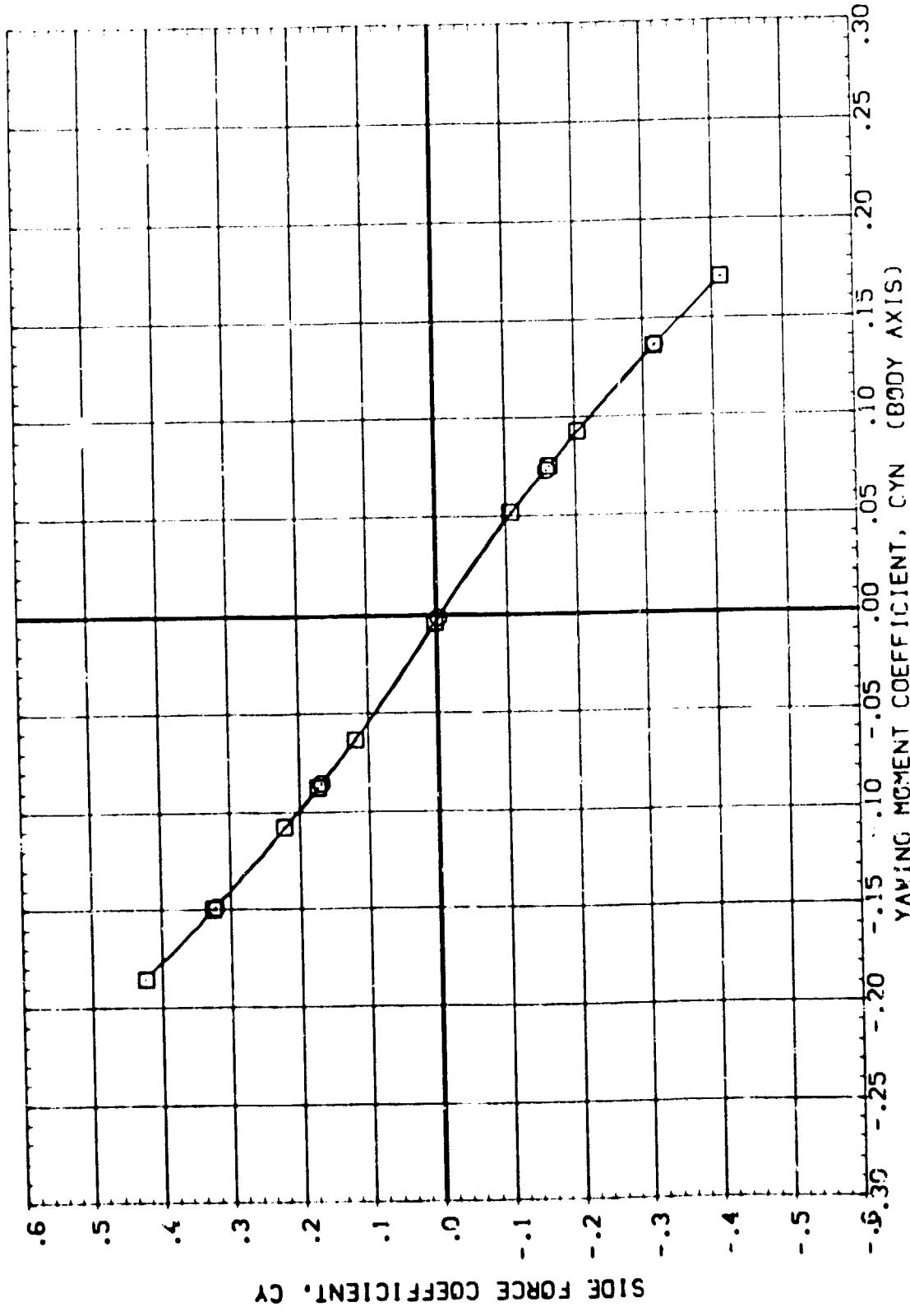
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(BU106)	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. SQ
(BU118)	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				BREF 1328.0002 INCHES
				YMRP 953.0001 INCHES
				ZMRP 400.0000 INCHES
				SCALE 0190



HOSE AND STING HARDWARE EFFECTS ON LATERAL CHARACTERISTICS

(A) MACH = 1.21

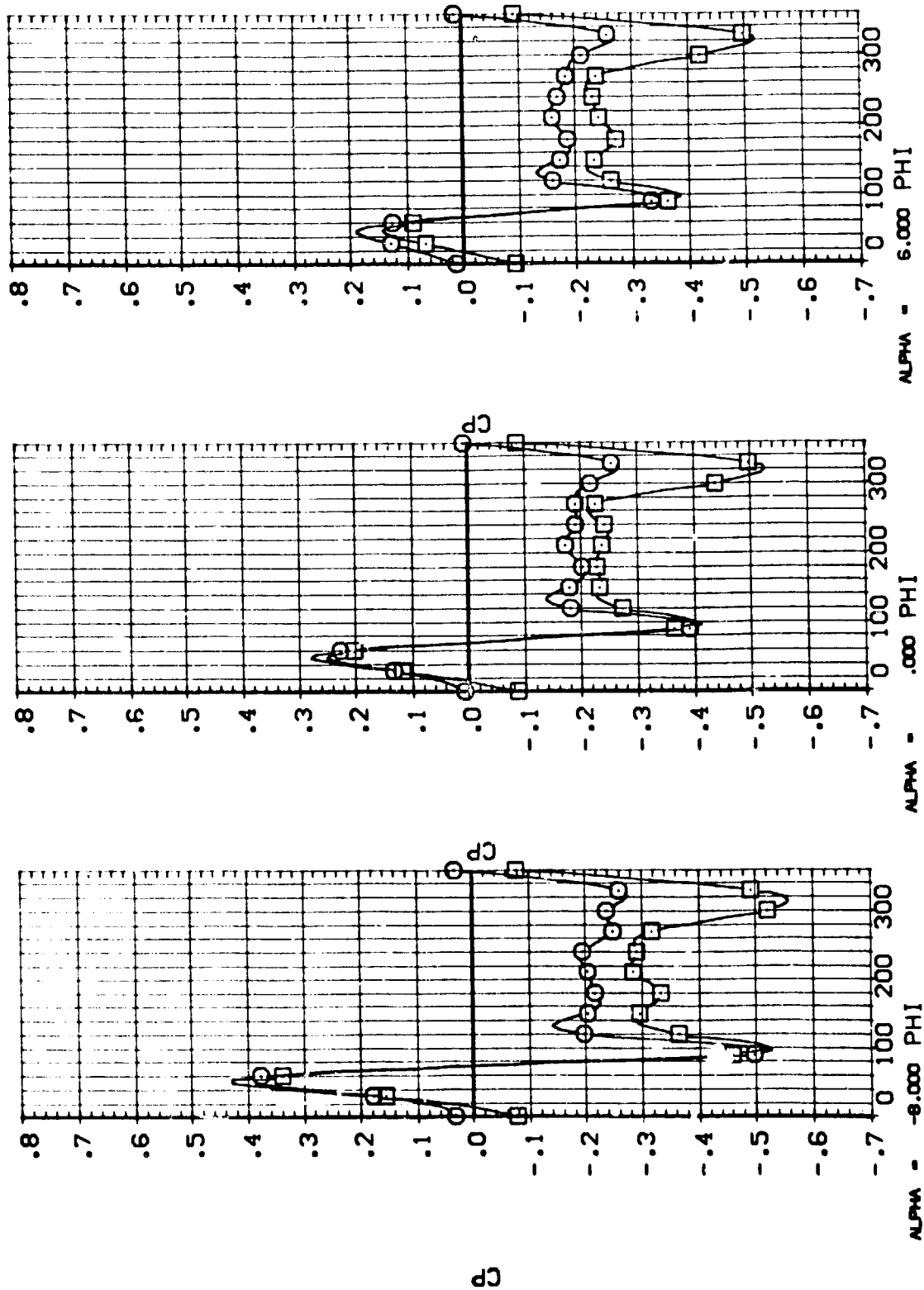
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	RUDDER	REFERENCE INFORMATION
(B)F1061	CALSPAN T14-053	.000	.000	SREF 2690.0004 FT. 822
(B)F1181	CALSPAN T14-053	.000	.000	LREF 1328.0002 INCHES
				LREF 1328.0002 INCHES
				XMRP 553.0001 INCHES
				ZMRP 400.0000 INCHES
				SCALE .0190







DATA SET SYMBOL      CONFIGURATION DESCRIPTION      BETA      POWER      DPR      SMPR  
(RUFAD01)      CAL T14-053 (A36 02 + T1 + S1) UPPER MPS NOZZLE      .000      .000      36.200      2.330  
(RUFAD03)      CAL T14-053 (A36 02 + T1 + S1) UPPER MPS NOZZLE      .000      1.000




## 2.330



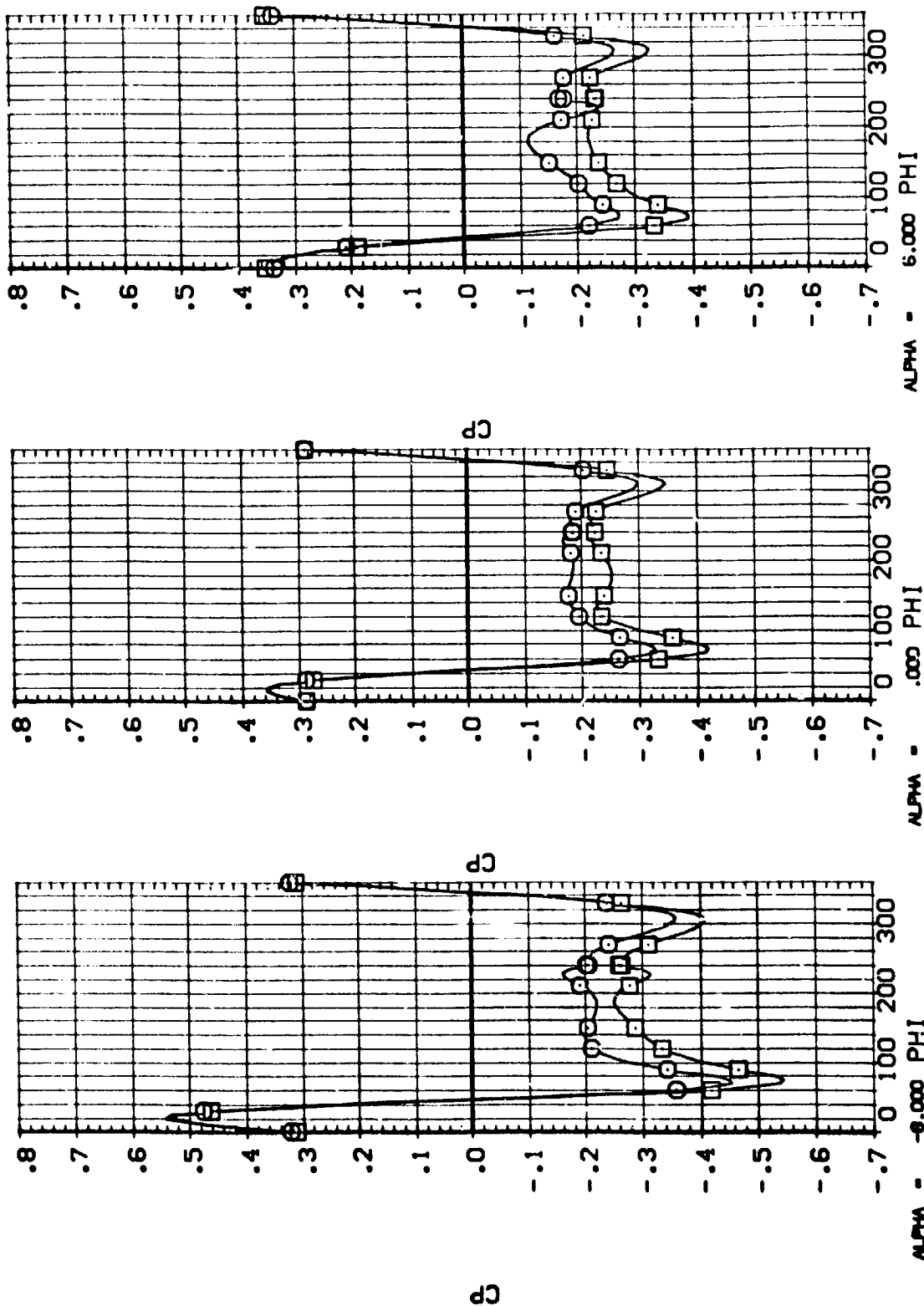
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$$\text{MACH} = .900 \quad X/DE = .232$$



DATA SET SYMBOL: (RUFAD1) (RUFAD3)  CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 Q2 + T1 + S1 UPPER MPS NOZZLE CAL T14-053 IAS6 Q2 + T1 + S1 UPPER MPS NOZZLE

BETA: .000 .000 POWER: .000 1.000 DPR: 36.200 SRMPR: 2.300



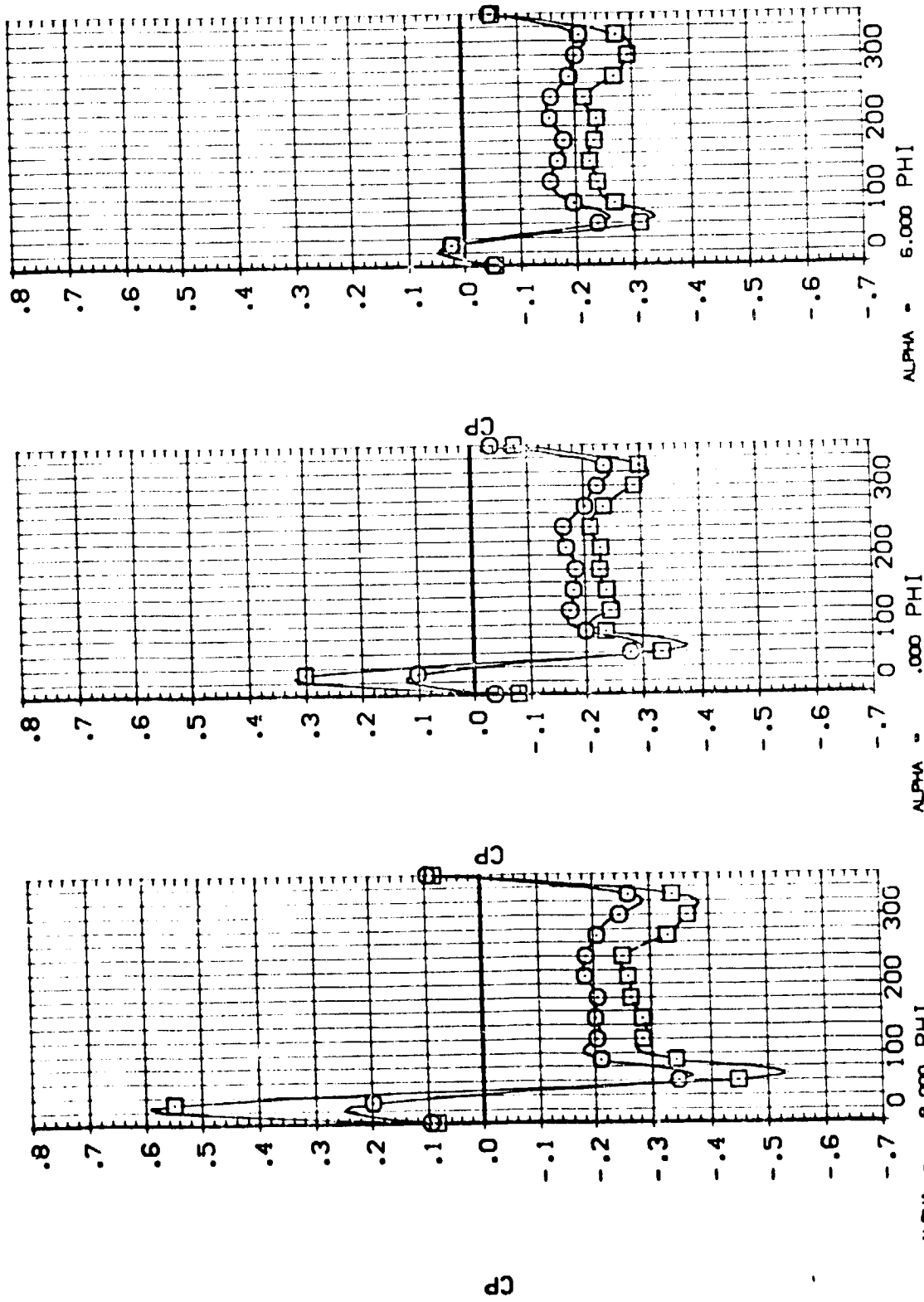
PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .406

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    BETA    POWER    DPR    SRMPR

(R5FA01)    CAL T14-053 (A36 C2 + T) + S1 UPPER MPS NOZZLE    .000    .000    1.000    36.200    2.330

(R5FA03)    CAL T14-053 (A36 C2 + T) + S1 UPPER MPS NOZZLE    .000    .000    1.000    36.200    2.330

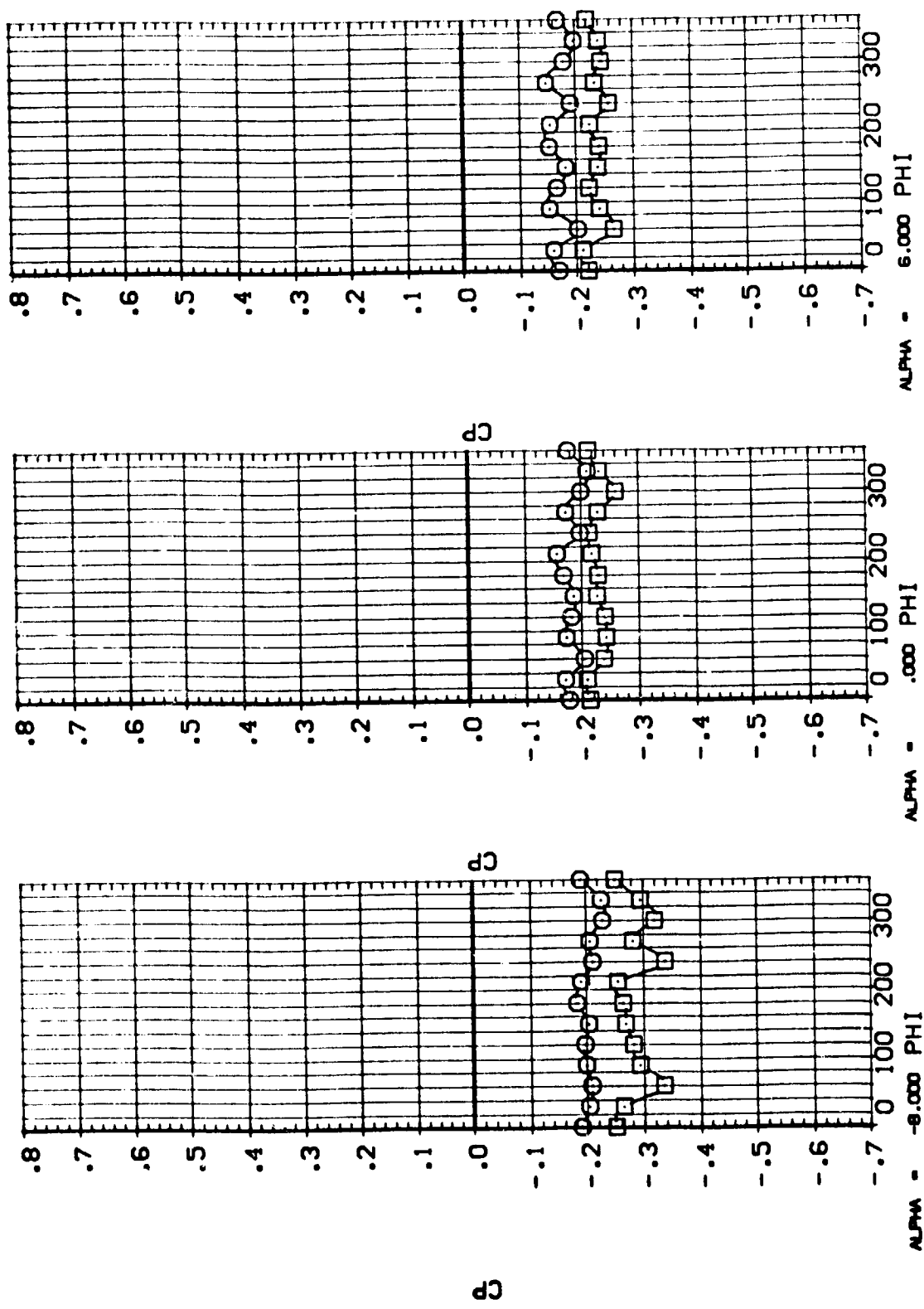


PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900    X/DE = .580



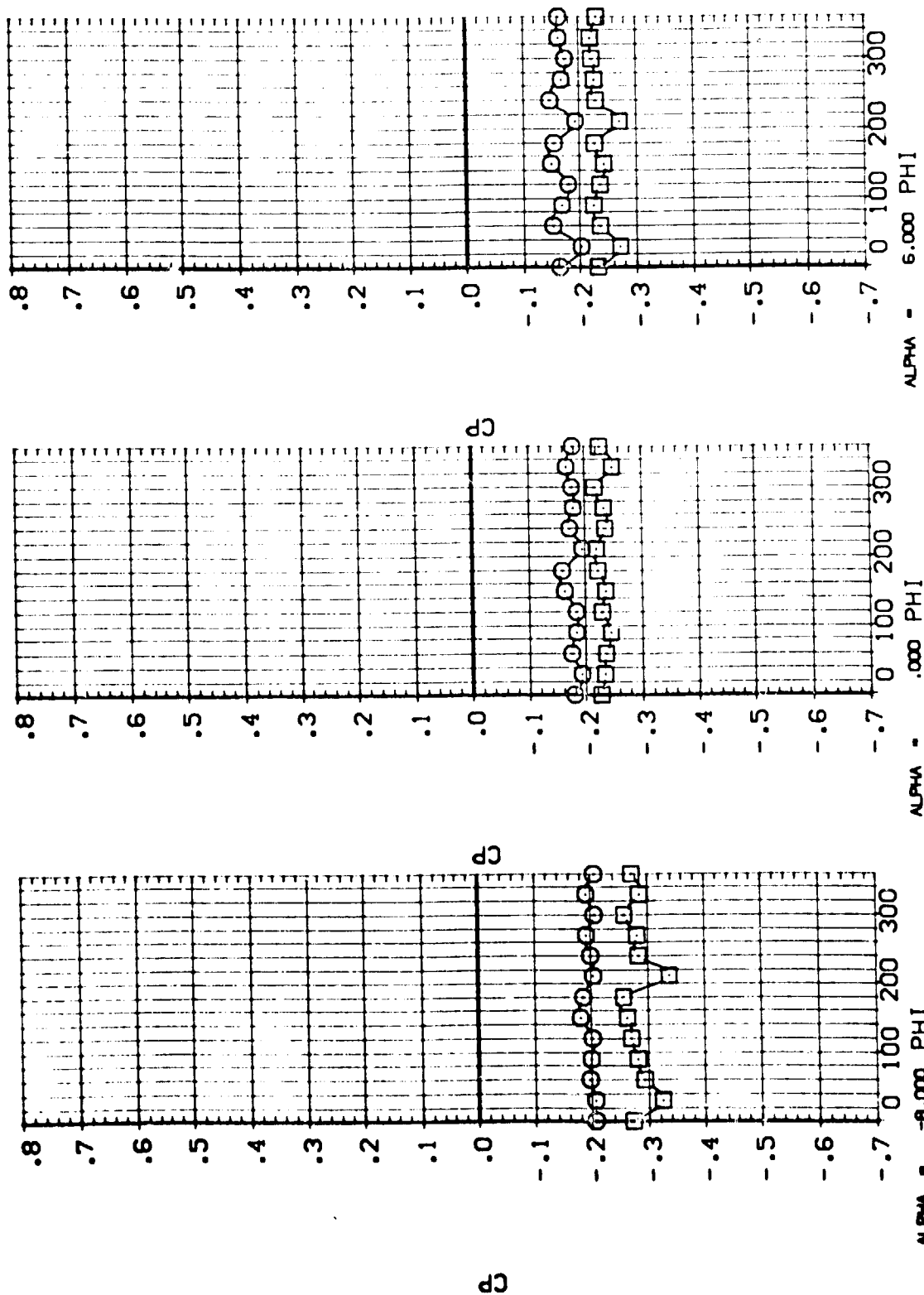
DATA SET SYMBOL    CONFIGURATION DESCRIPTION    BETA    POWER    DPR    SRMPR  
(RUFAD1)    CAL T14-053 I A36 02 + T1 + S1 UPPER MPS NOZZLE    .000    .000    36.200    2.300  
(RUFAD3)    CAL T14-053 I A36 02 + T1 + S1 UPPER MPS NOZZLE    .000    1.000



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900    X/DE = .754

DATA SET SYMBOL: (RUFAD01) (RUFAD03) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 \* T1 \* S1 UPPER MPS NOZZLE CAL T14-053 IAS6 02 \* T1 \* S1 UPPER MPS NOZZLE BETA: .000 .000 POWER: .000 1.000 DPR: 36.200 SRMPR: 2.330



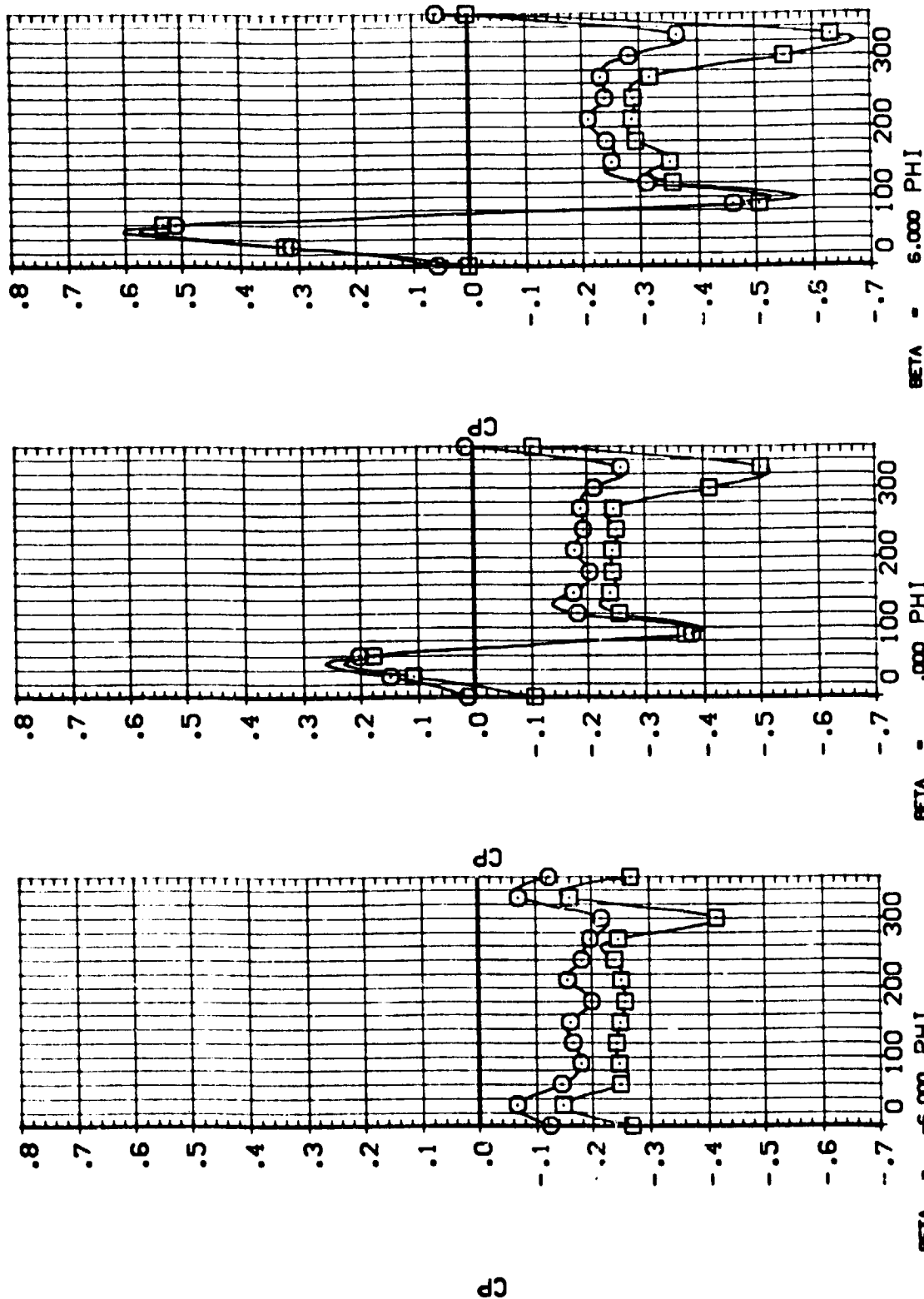
PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .928



✓-3

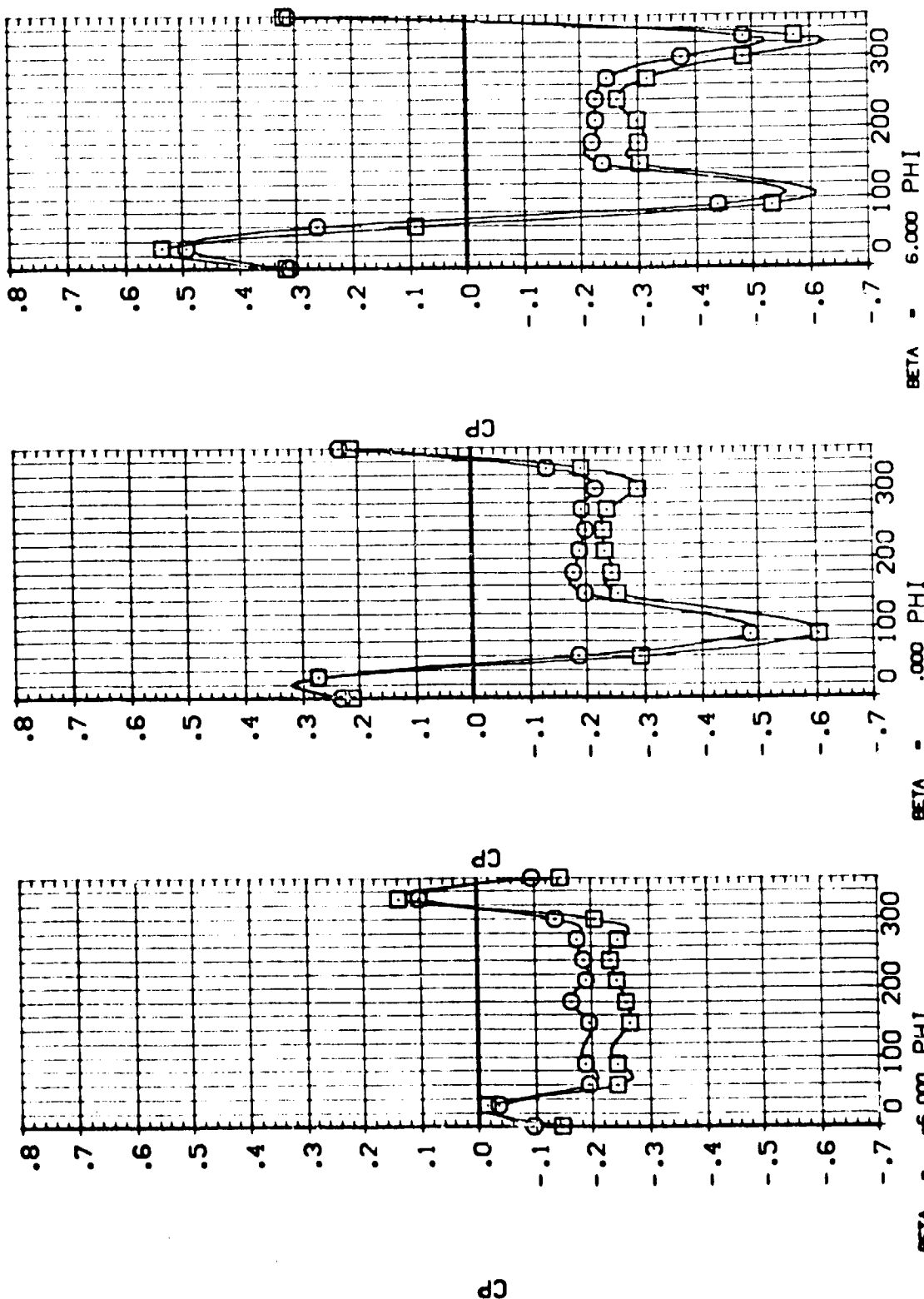
DATA SET SYMBOL: (RUFAD02) (RUFAD04) CONFIGURATION DESCRIPTION: CAL T14-053 [A36 02 + T1 + S1] UPPER MPS NOZZLE ALPHA: .000 POWER: .000 1.000 36.200 2.300 SRPR: 2.300



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .058

DATA SET SYMBOL: (RUFAD2) (RUFAD4) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE ALPHA: .000 .000 POWER: .000 1.000 DPR: 36.200 36.200 SRPR: 2.330 2.330



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .232





DATA SET SYMBOL: (RUFAD2) (RUFAD1)

CONFIGURATION DESCRIPTION:  
 CAL 1:4-053 | A36 02 + T1 + S1  
 CAL 1:4-053 | A36 02 + T1 + S1

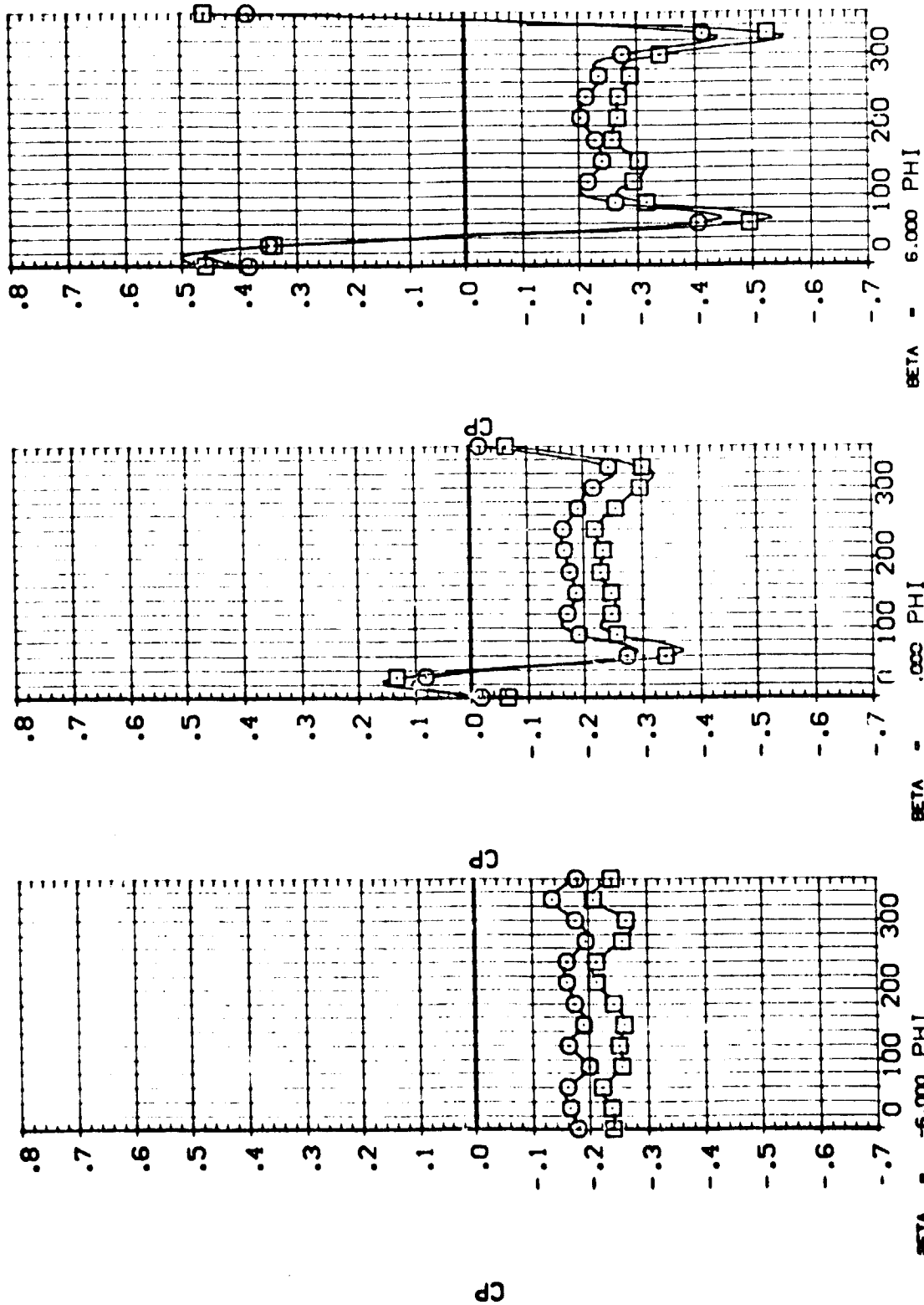
UPPER MPS NOZZLE  
 UPPER MPS NOZZLE

ALPHA: .000 .000

POWER: .000 1.000

OPR: 36.200

SRMPR: 2.330



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .580

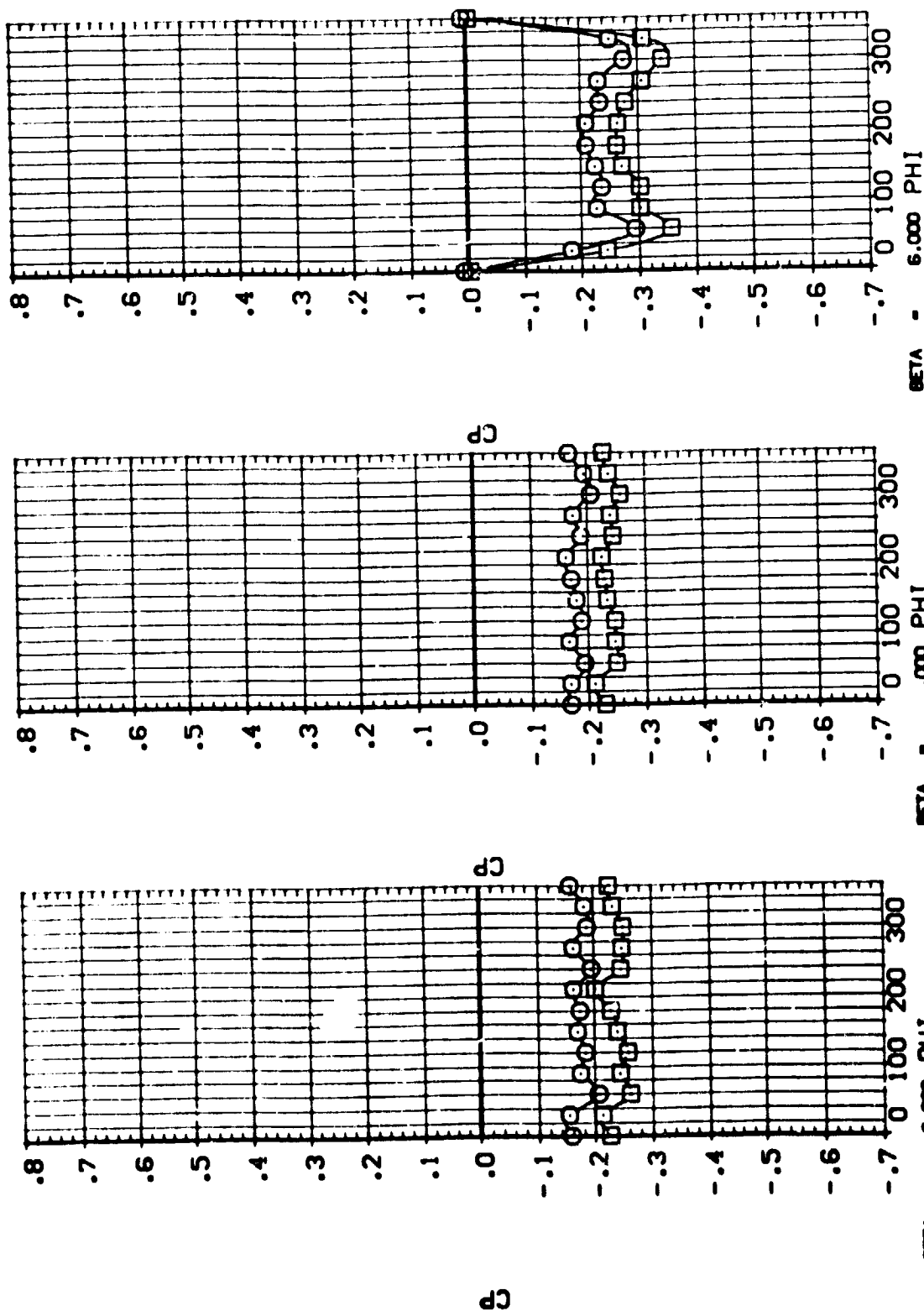


DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RUFAD2)  
(RUFAD1)

CAL T14-053 IAS6 O2 : T1 : S1 UPPER MPS NOZZLE  
CAL T14-053 IAS6 O2 : T1 : S1 UPPER MPS NOZZLE

ALPHA POWER DPR SRPR  
.000 .000 36.200 2.330



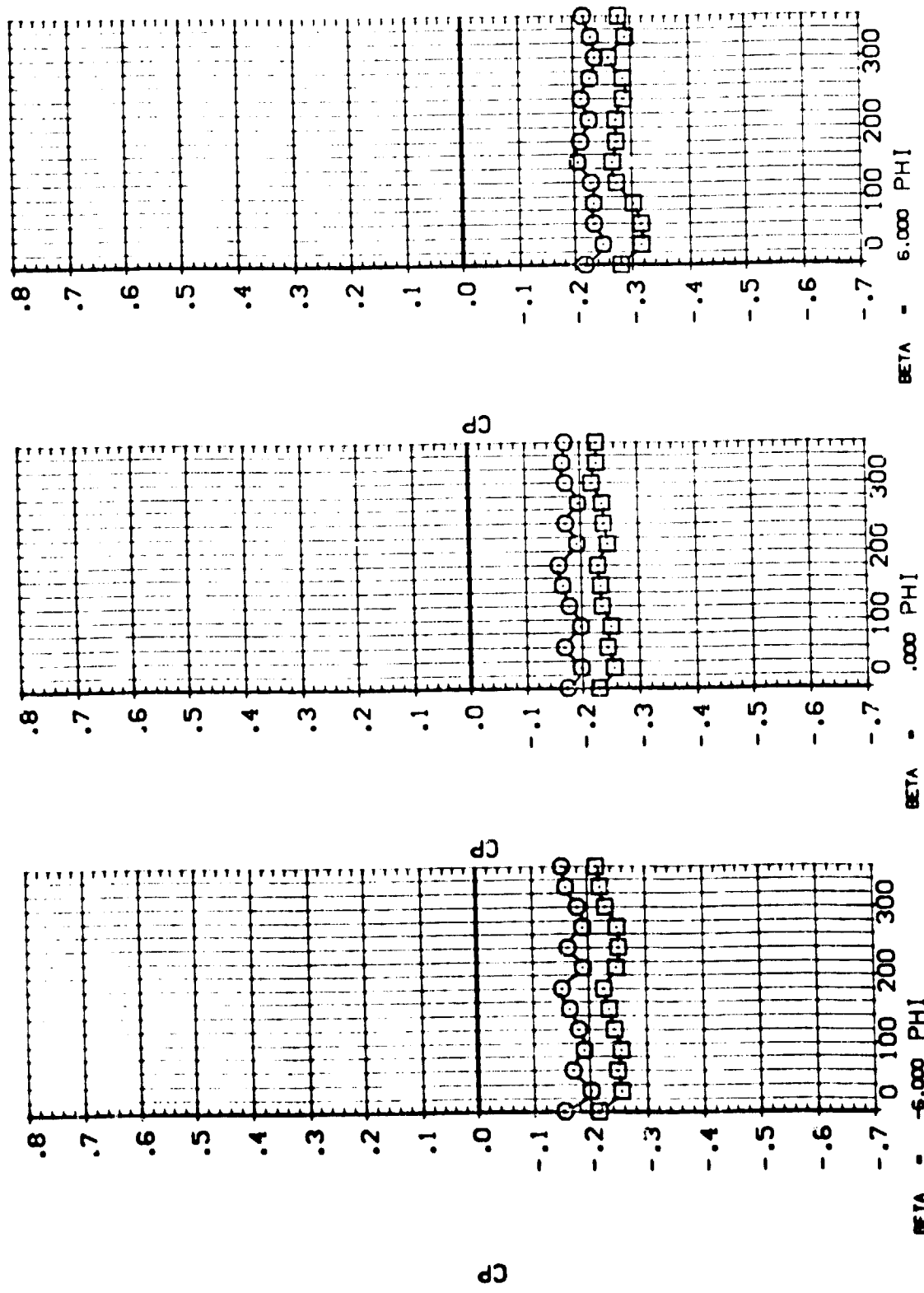
PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .754

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    POWER    DPR    SHPR

[RUFAC2]    CAL 114-053 [A36 02 + 1] + S1 UPPER MPS NOZZLE    .000    .000    36.200    2.330

[RUFAC4]    CAL 114-053 [A36 02 + 1] + S1 UPPER MPS NOZZLE    .000    1.000         



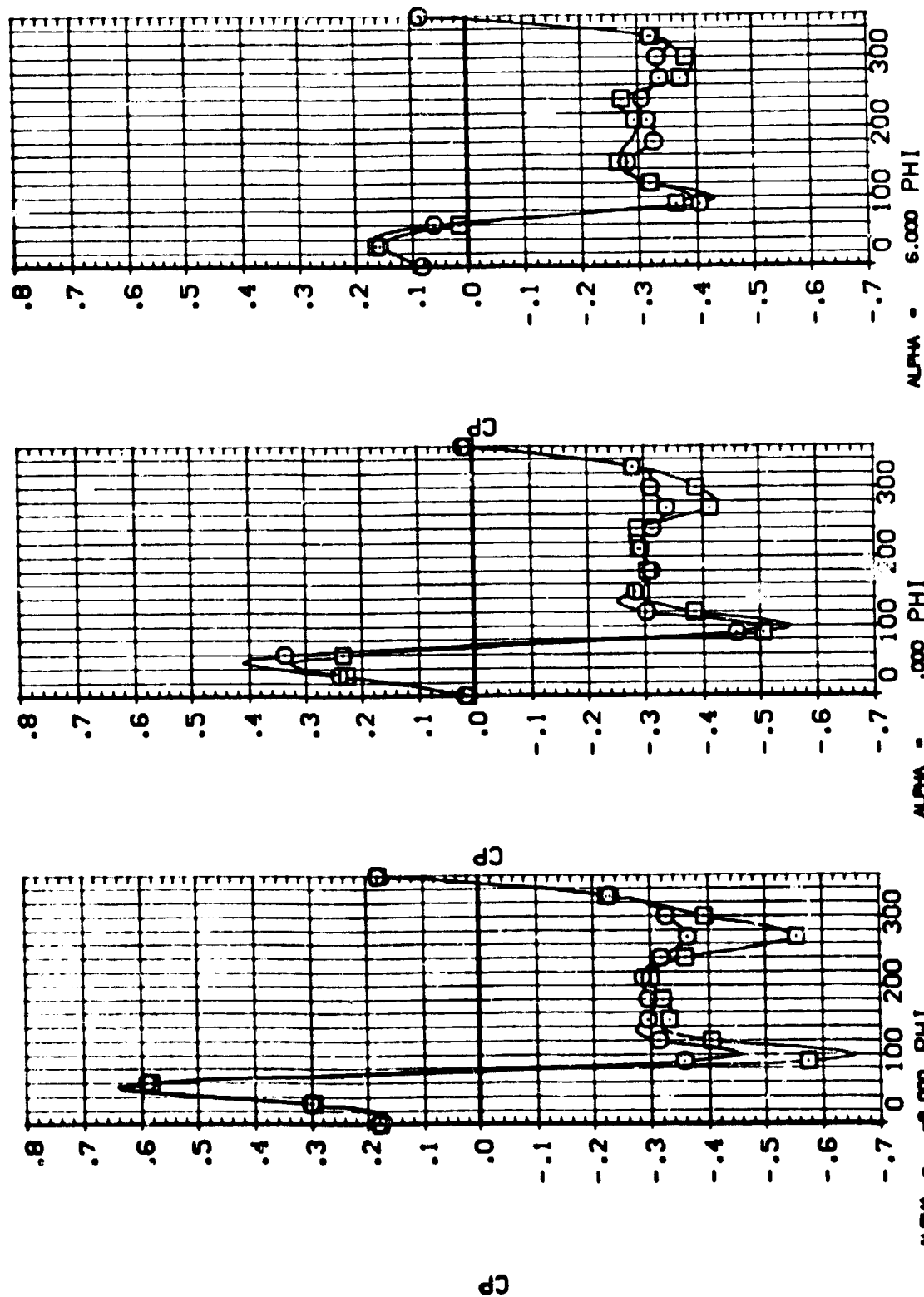
PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

$\alpha_{AC} = .900$      $X/DE = .928$



DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (RUFAD7) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

BETA: .000  
 POWER: .000  
 CPMR: 28.310  
 SMPR: 2.020

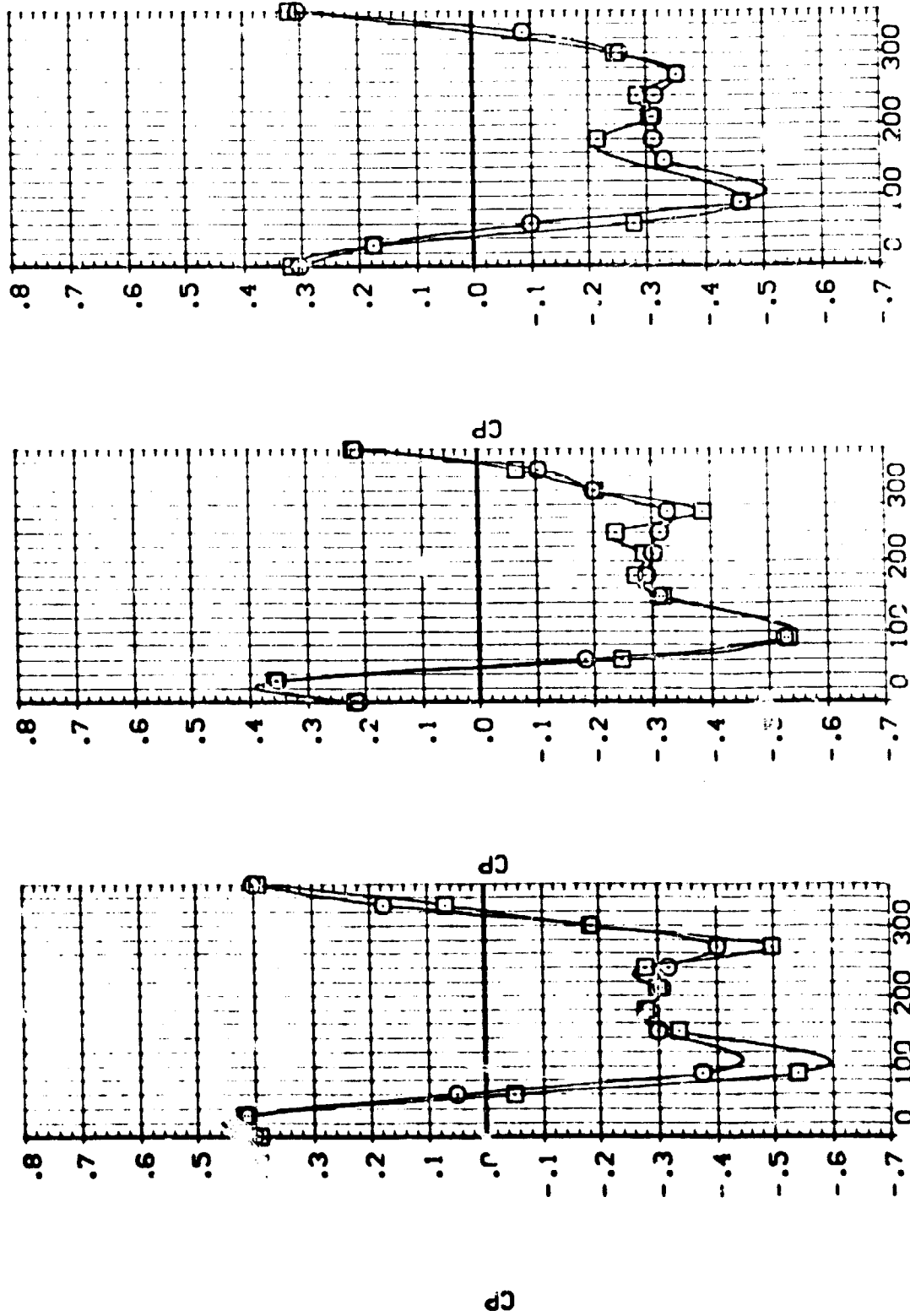


PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .058

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (RUF A05) CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 (RUF A07) CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE

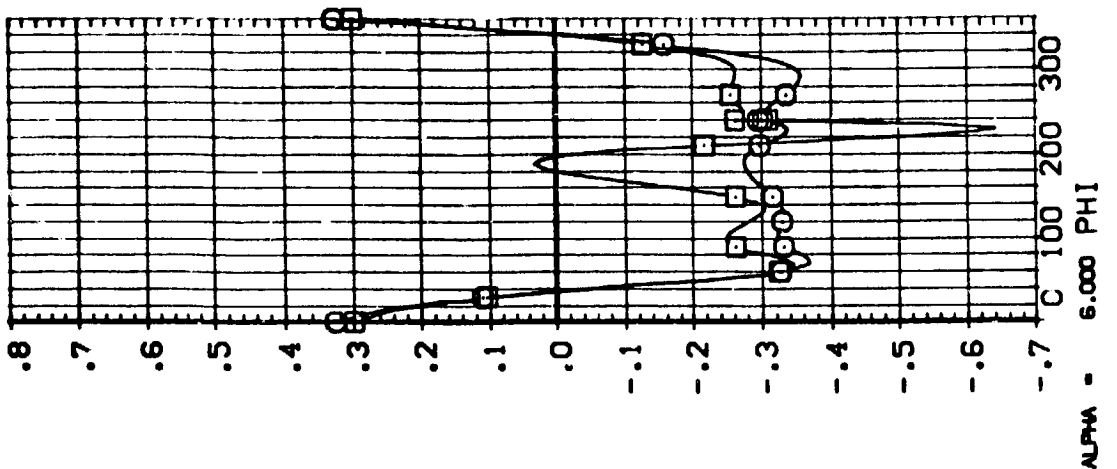
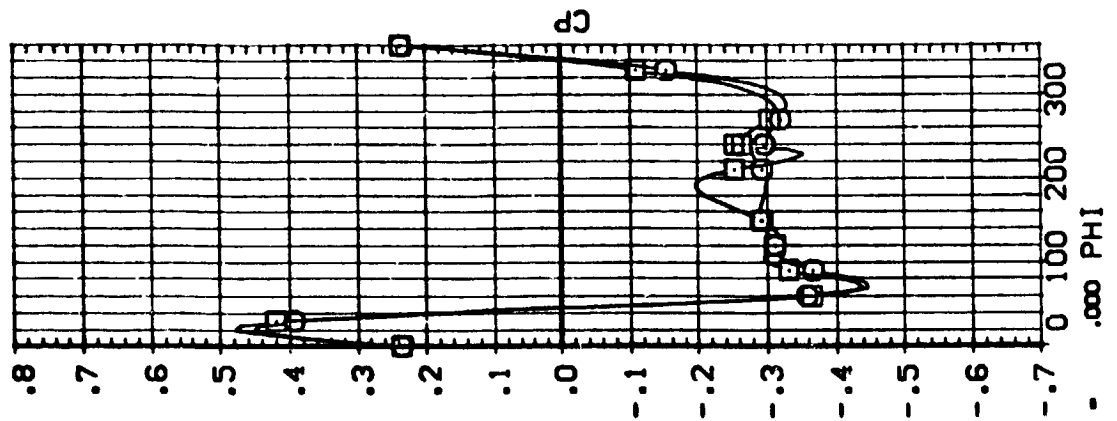
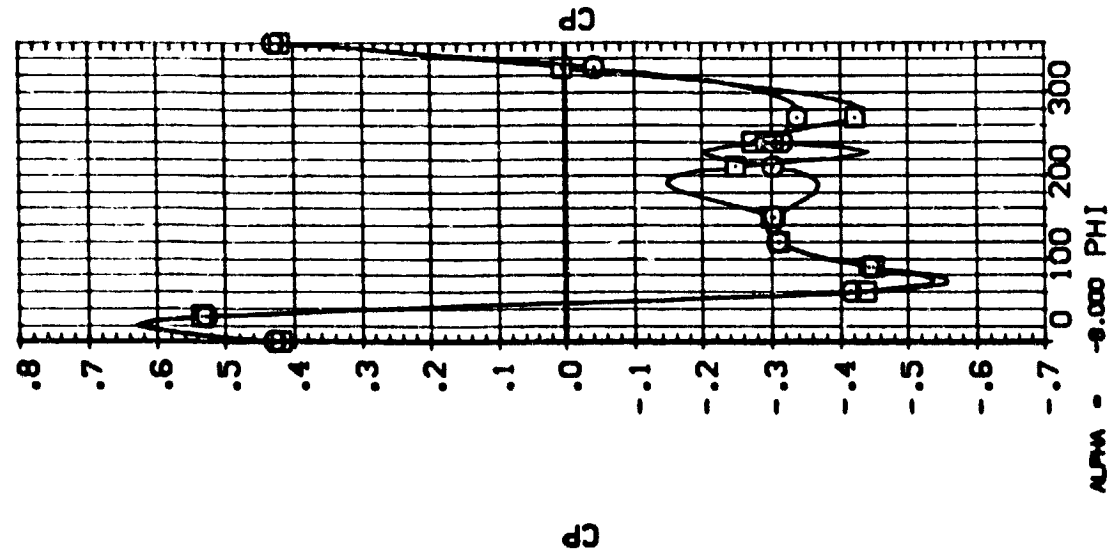
BETA POWER CPR SPRPR  
 .000 .000  
 .000 1.000 28.310 2.020





DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (RUFAG5) CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE  
 (RUFAG7) CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE

BETA POWER CPR SRPR  
 .000 .000 28.310 2.020



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

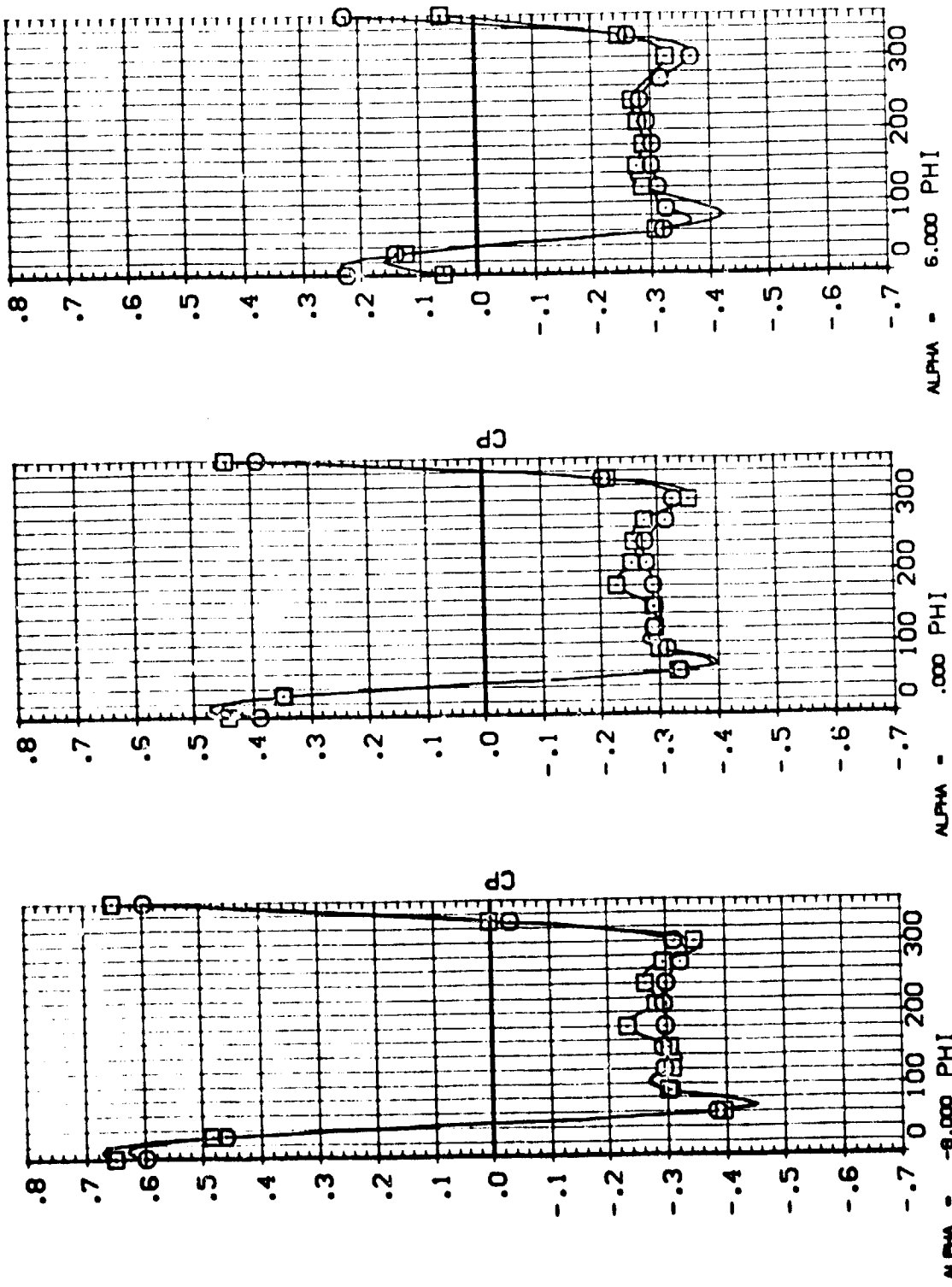
MACH = 1.200 X/DE = .406

DATA SET SYMBOL: CONFIGURATION DESCRIPTION

(RFACTS) CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

(RFACTS) CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

BETA .000 POWER .000 DFR 28.310 SHPR 2.020



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .580





DATA SET SYMBOL CONFIGURATION DESCRIPTION

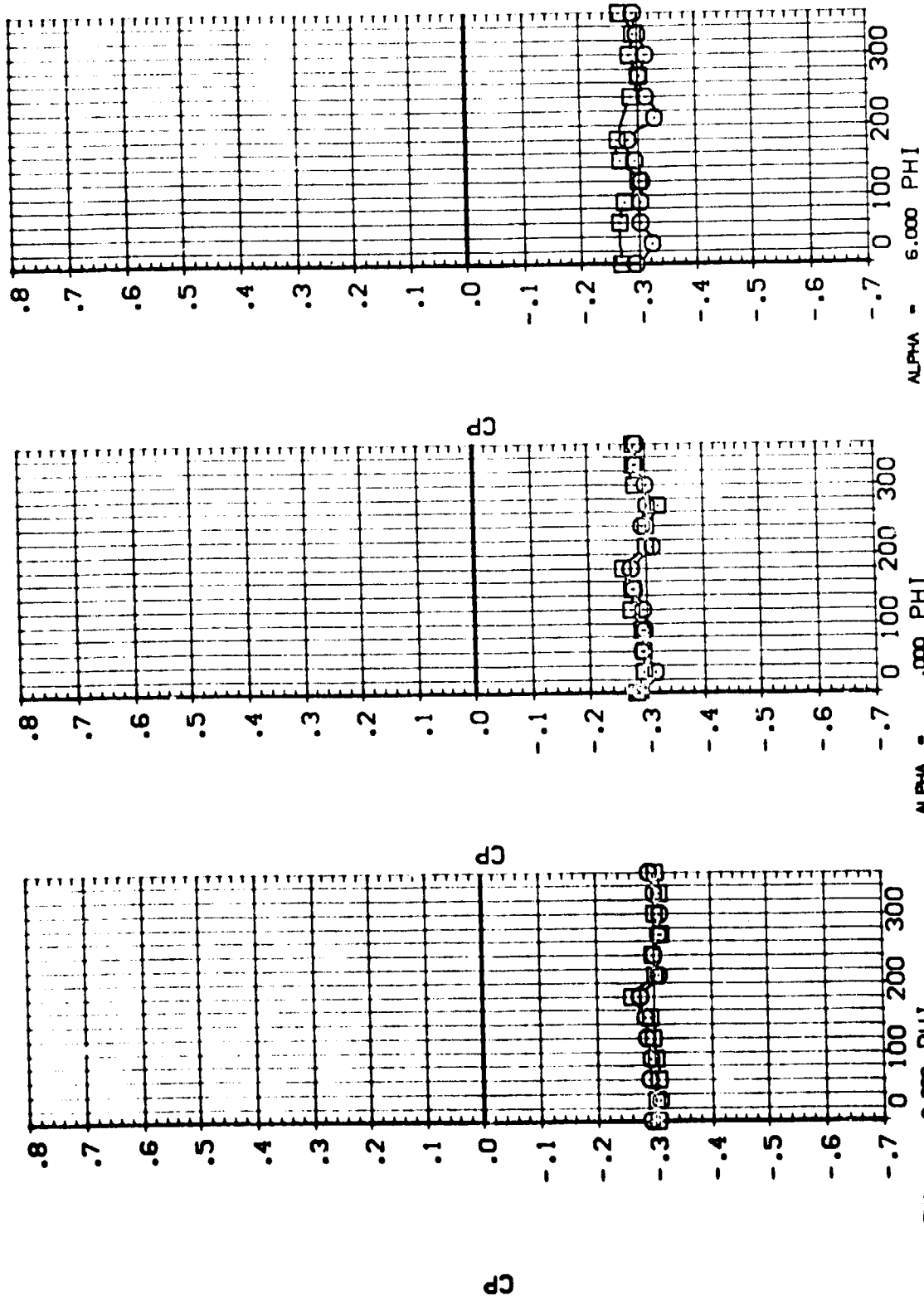
(RJFAD5)

(RJFAD7)

CAL T14-053 (A36 02 + T1) + S1 UPPER MPS NOZZLE

CAL T14-053 (A36 02 + T1) + S1 UPPER MPS NOZZLE

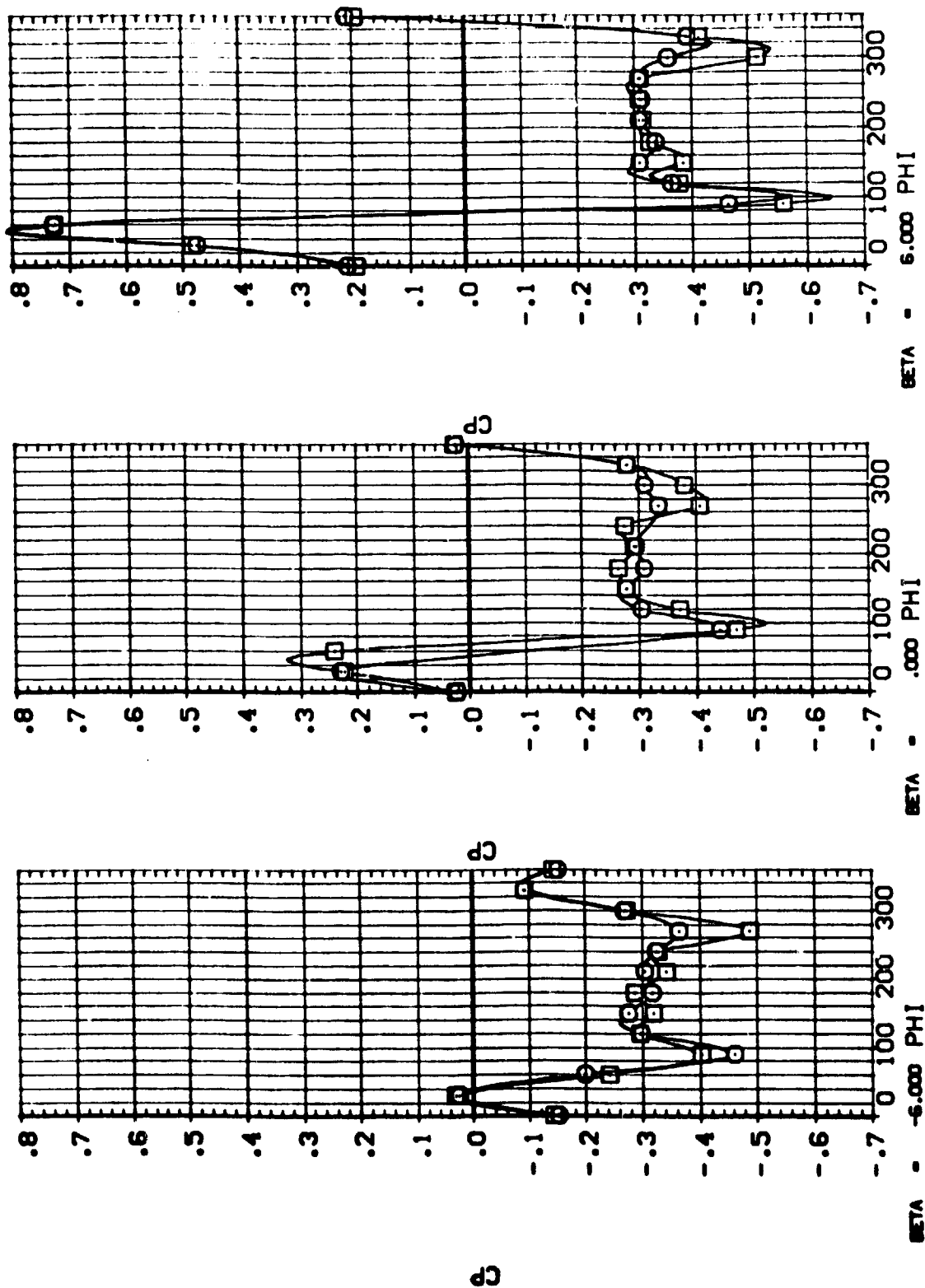
BETA .000 POWER .000 DPR 28.310 SMPR 2.020



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .928

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	POWER	OPR	SRPR
(RUF06)	CAL T14-053 I36 02 + T1 + S1	.000	.000		
(RUF08)	CAL T14-053 I36 02 + T1 + S1	.000	1.000	28.310	2.020



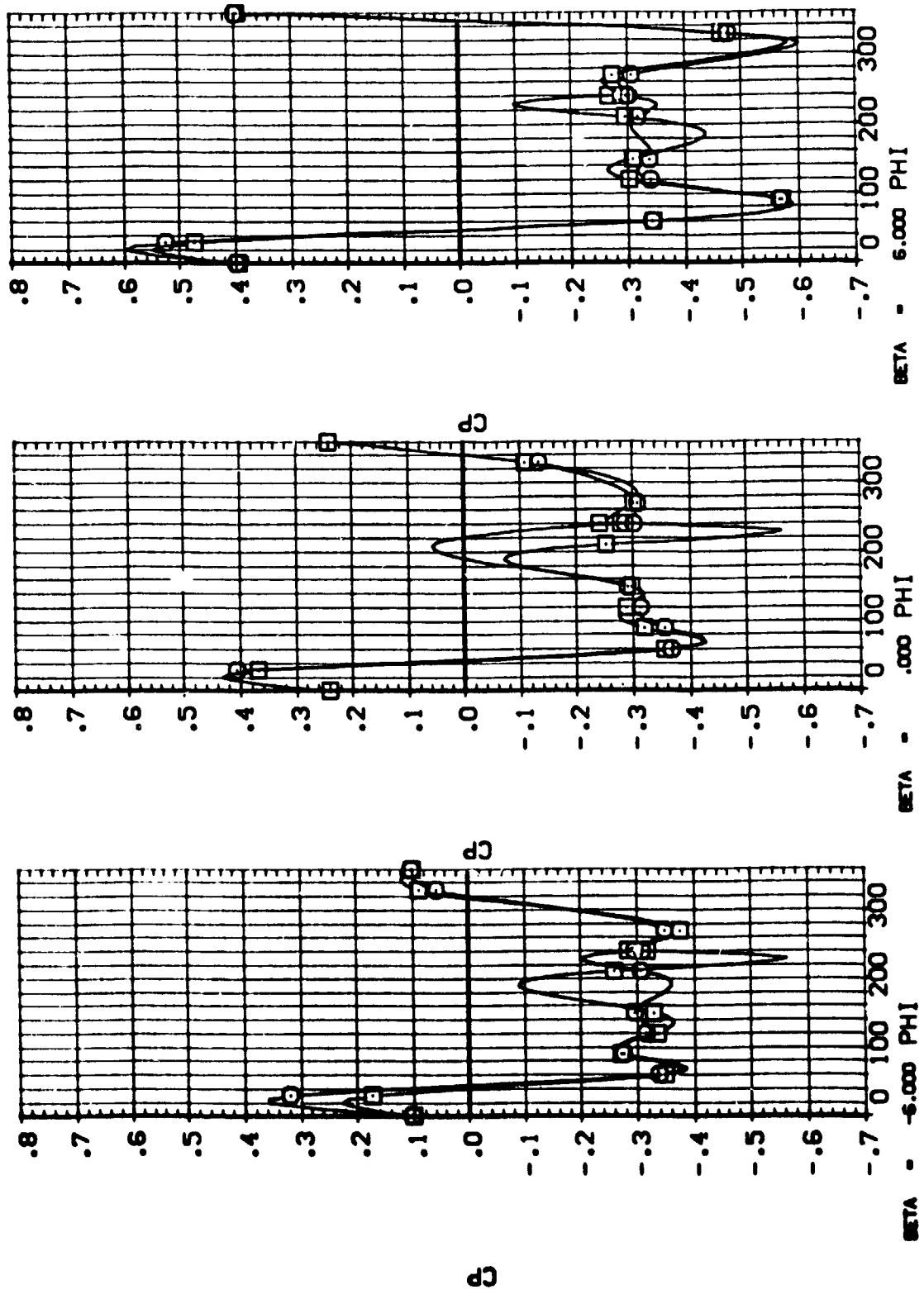
### PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

$$\text{MACH} = 1.200 \quad X/DE = .058$$


$$\text{MACH} = 1.200 \quad X/DE = .232$$



DATA SET SYMBOL: CAL T14-053 IAS6 02 : T1 : S1 UPPER MPS NOZZLE  
 (RUFAD05) [ ] CAL T14-053 IAS6 02 : T1 : S1 UPPER MPS NOZZLE  
 ALPHA: .000 POWER: .000 SFRF: 2.020  
 BETA: .000

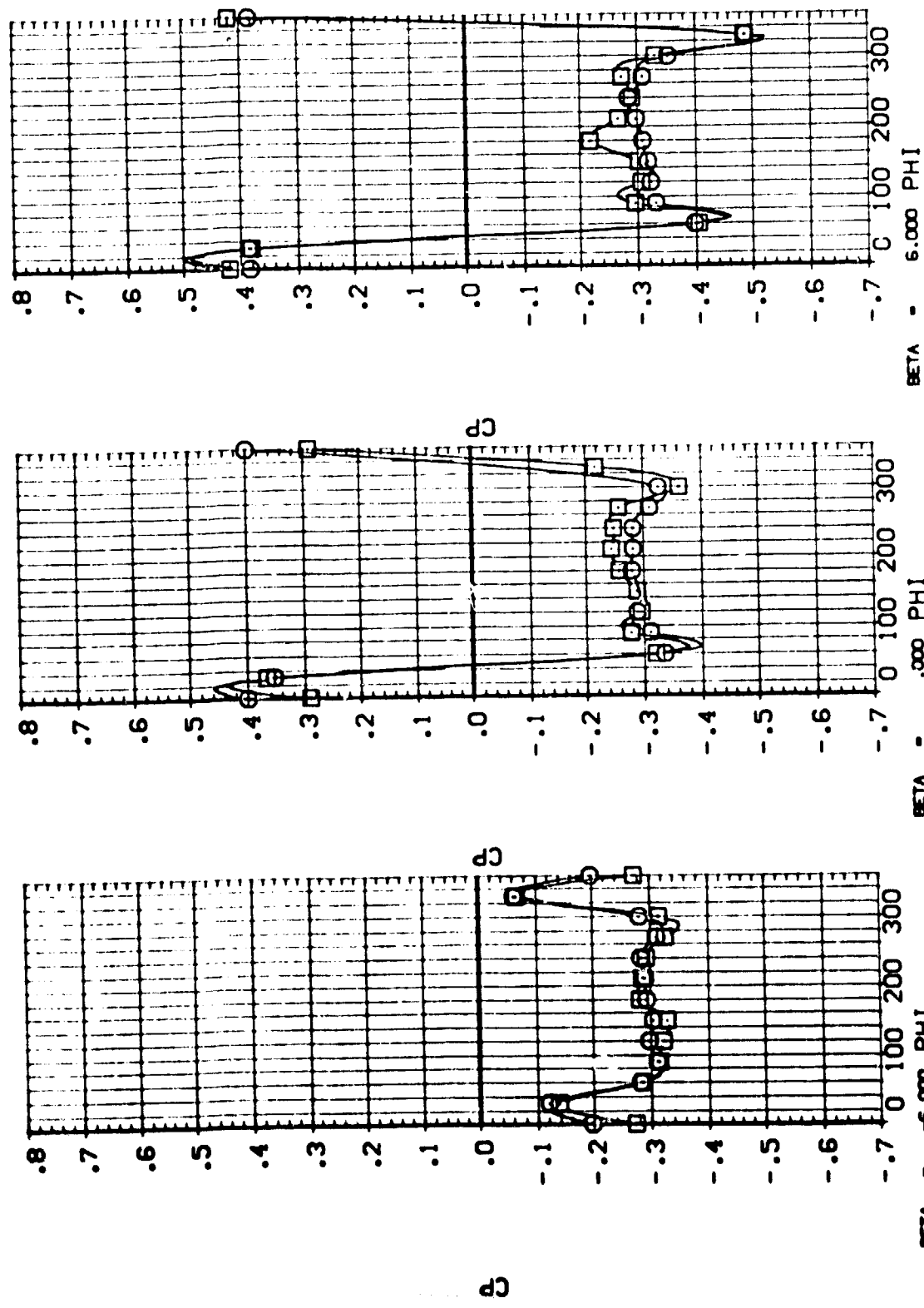


PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (RUF A06) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (RUF A08)


ALPHA .000 POWER .000 CDR 28.310 SRMPR 2.020



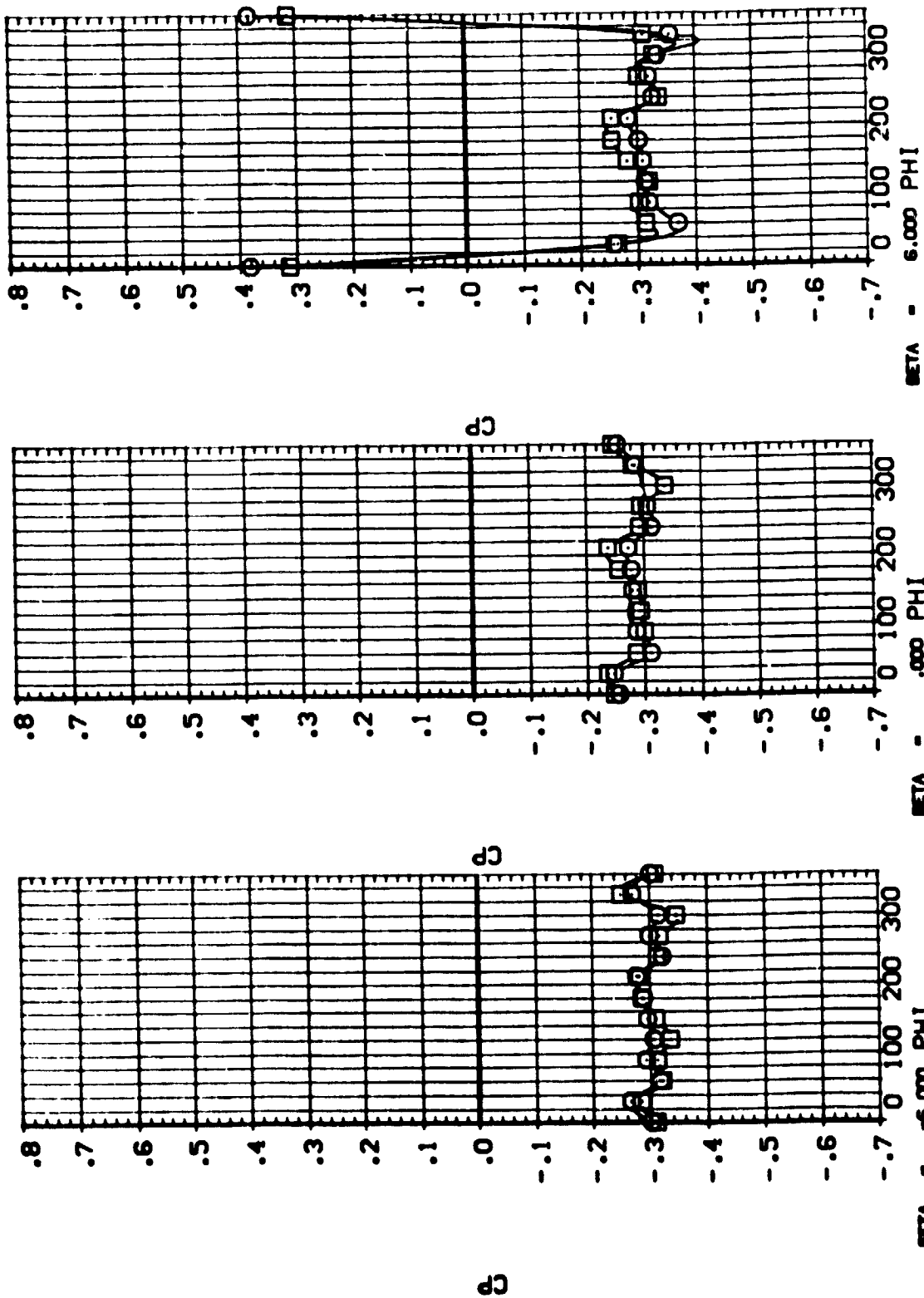
PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .580



DATA SET SYMBOL:  CONFIGURATION DESCRIPTION: CAL T14-053 (A36 02 + T1) + S1 UPPER MPS NOZZLE  
 (RUFAS) (RUFAS) CAL T14-053 (A36 02 + T1) + S1 UPPER MPS NOZZLE

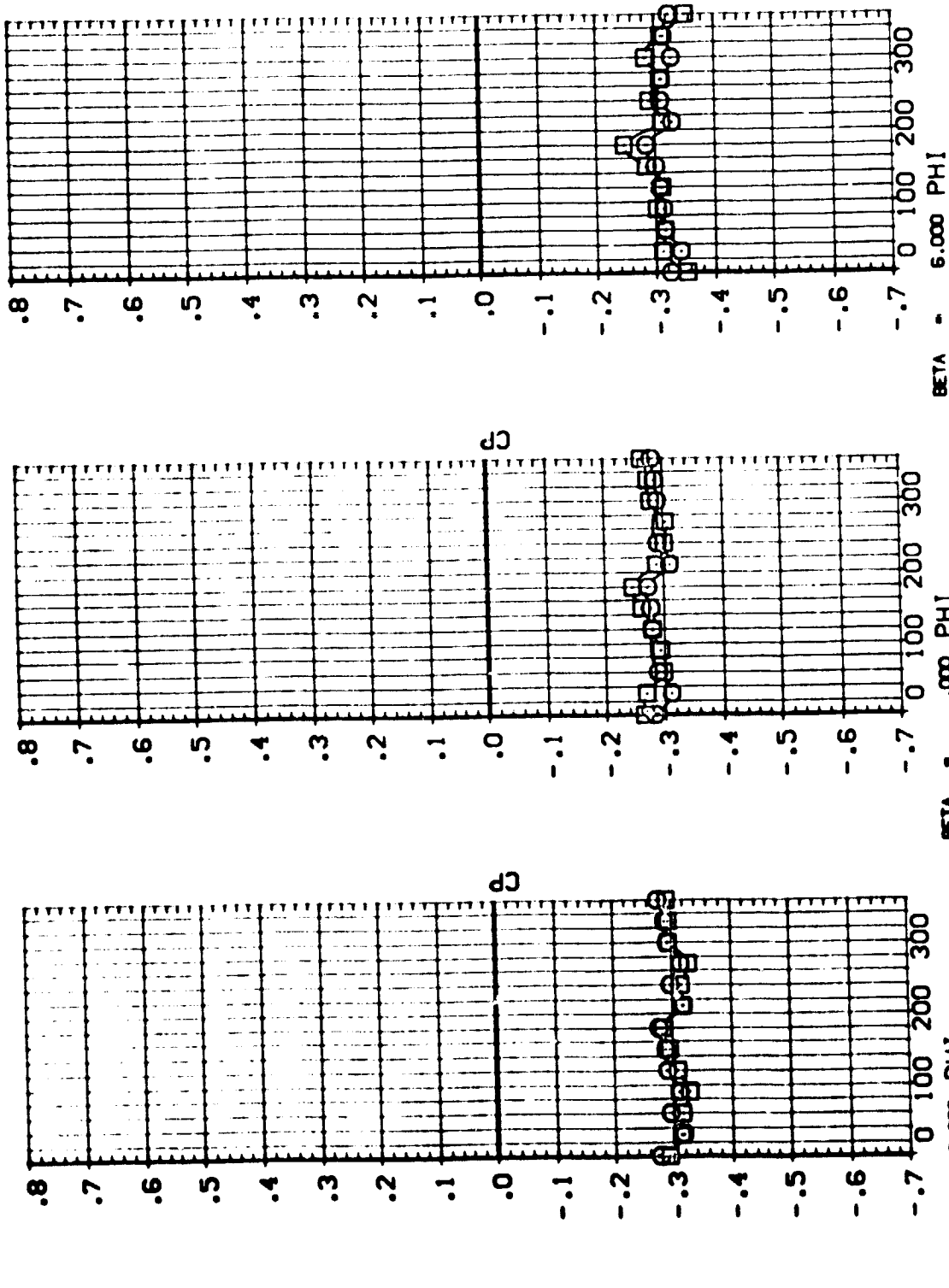
ALPHA .000 POWER .000 DFR 28.310 SFRFR 2.020



PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .754

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA POWER DPR SRMR  
 (RUFAG8) CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE .000 1.000 28.310 2.020  
 (RUFAG8) CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE .000 1.000 28.310 2.020



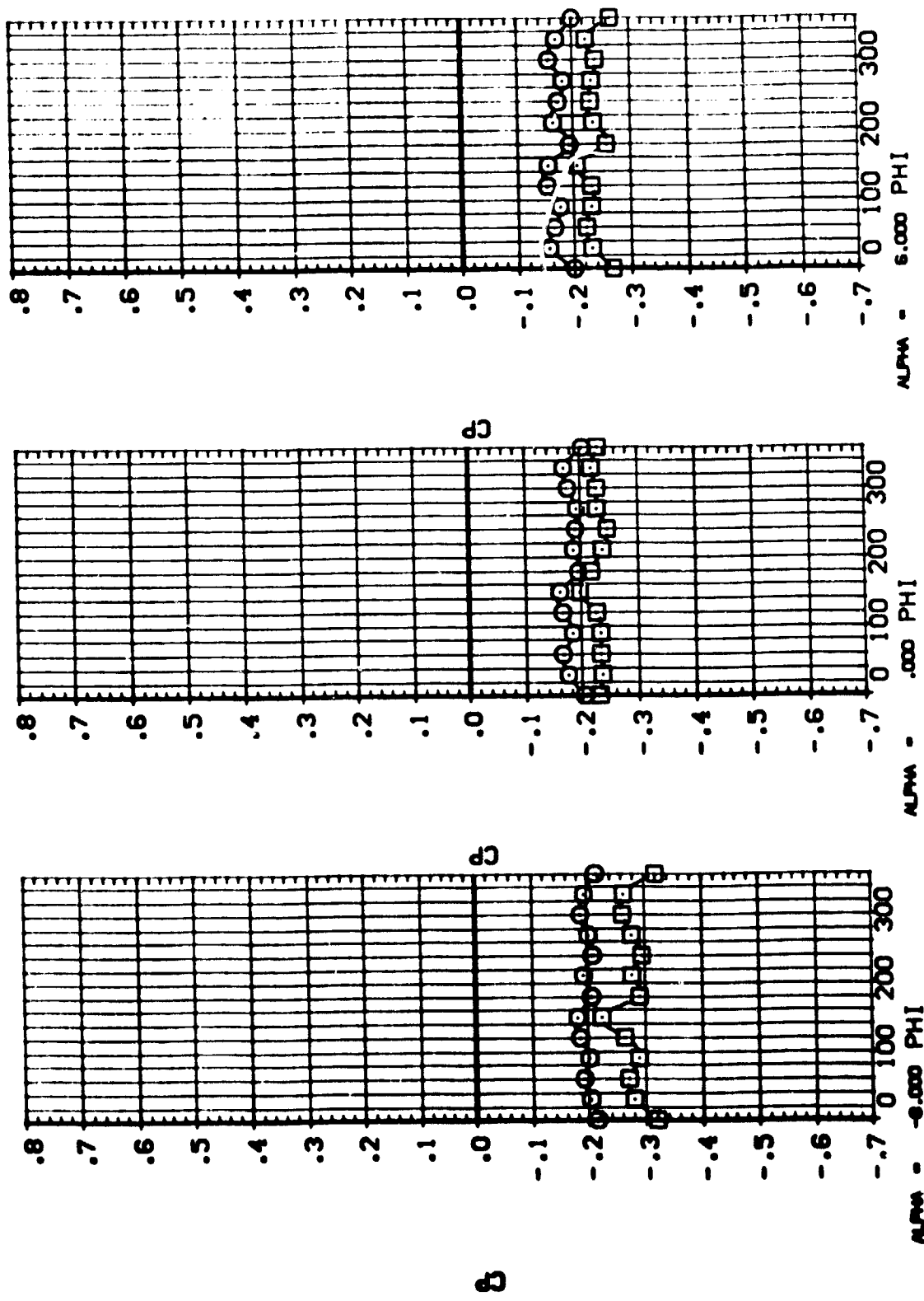
PLUME EFFECT ON UPPER MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .928





DATA SET SYMBOL: (RUF801) (RUF803) CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ. BETA: .000 POWER: .000 QPR: 36.200 SRPR: 2.300



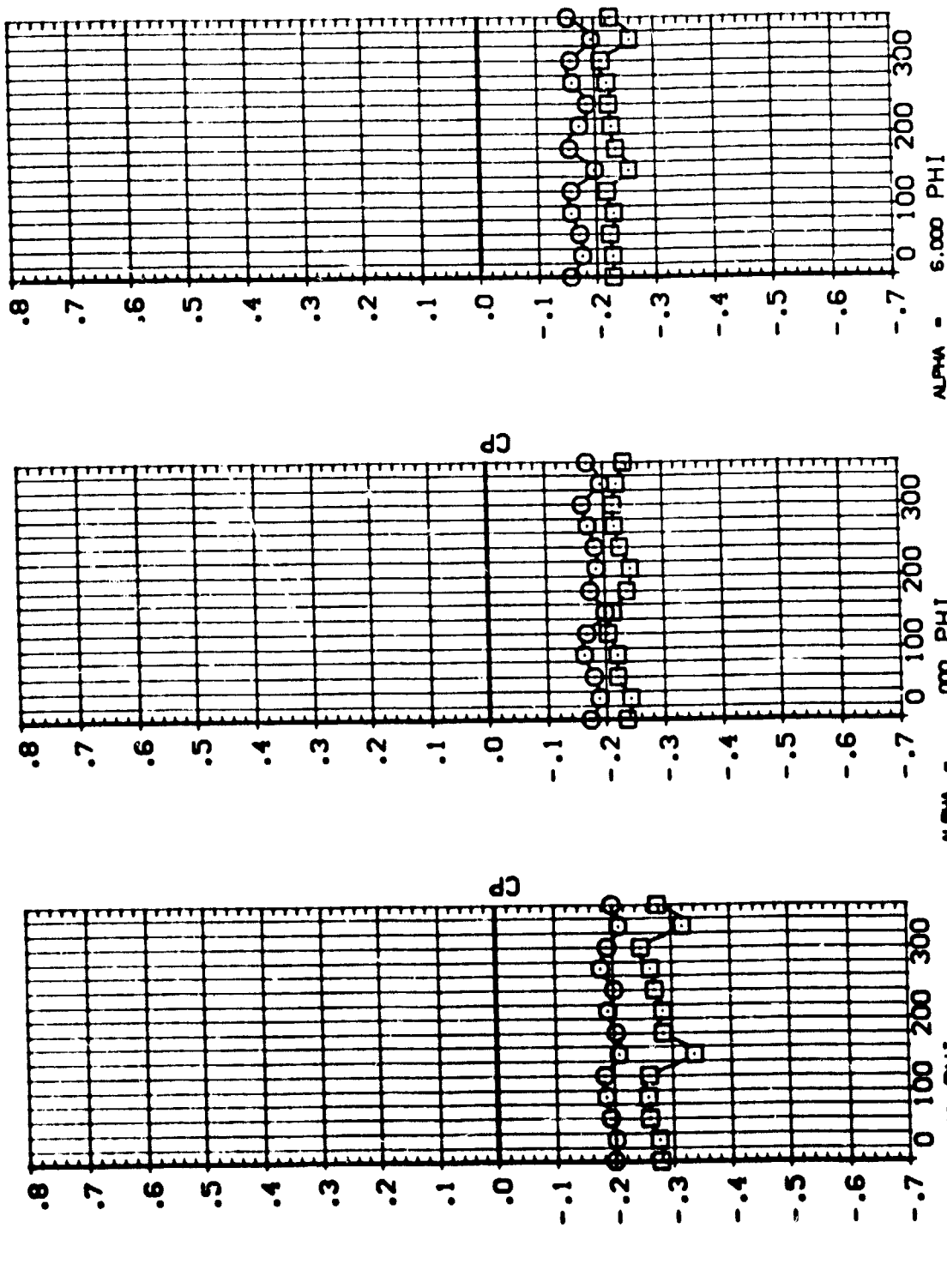
PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .058

DATA SET SYMBOL: CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.  
 (MURB01) CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.  
 (MURB03)

BETA POWER CFR SFR

.000 .000 36.200 2.300

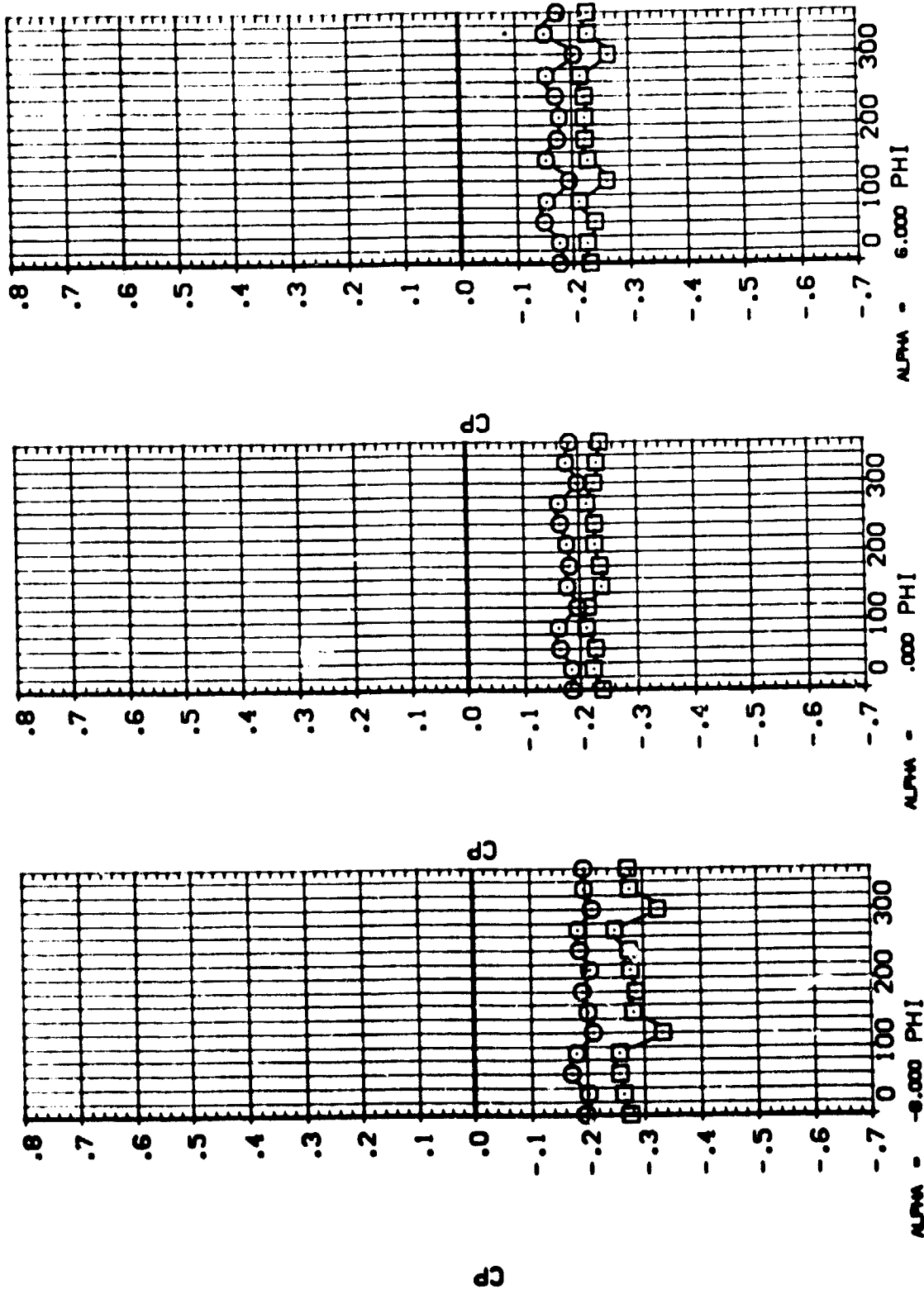


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .232



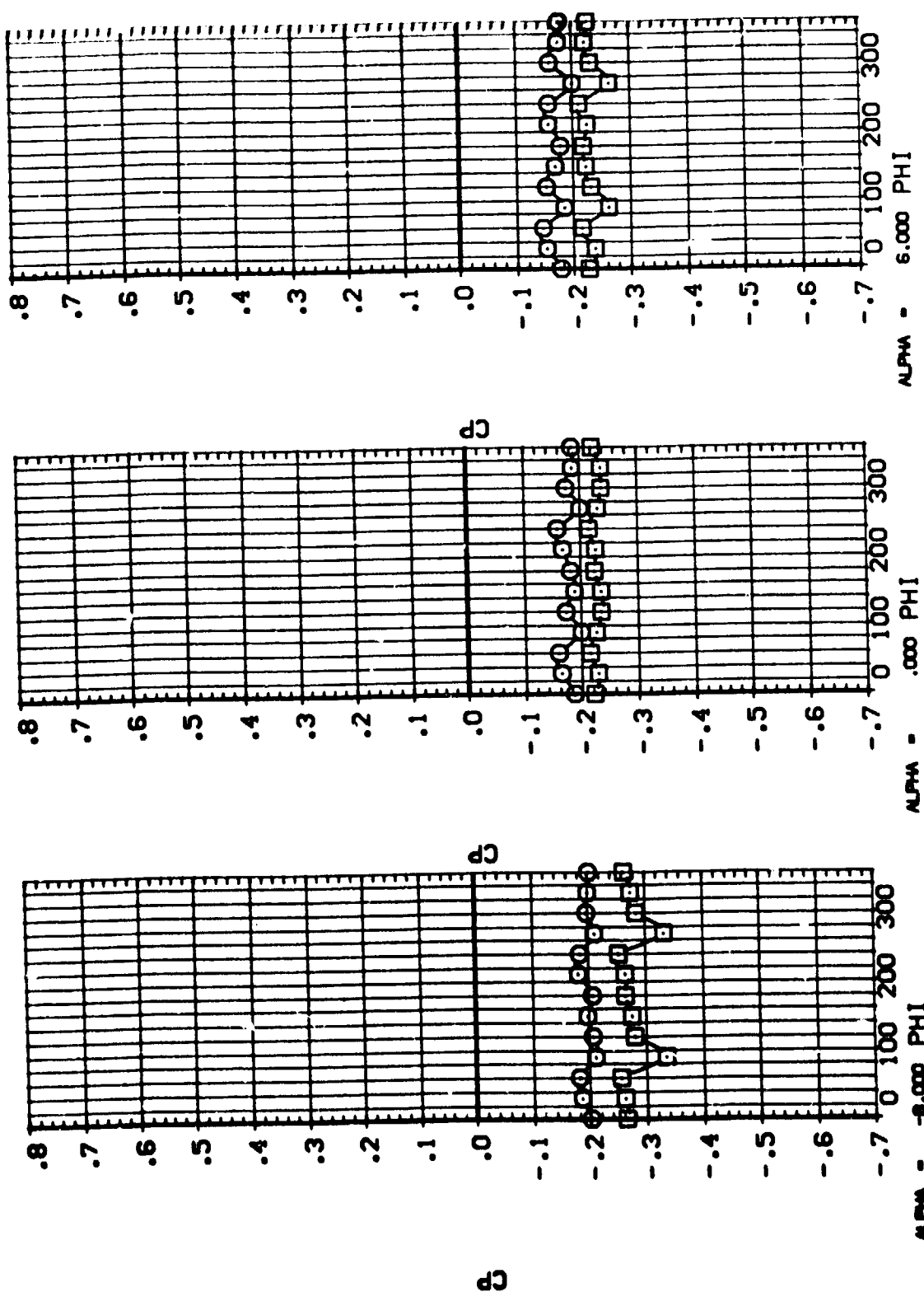
DATA SET SYMBOL: (RUF801) (RUF803) CONFIGURATION DESCRIPTION: CAL 114-053 1A36 02 : T1 : S1 LOWER LH MPS NOZ: CAL 114-053 1A36 02 : T1 : S1 LOWER LH MPS NOZ: BETA: .000 .000 POWER: 1.000 1.000 CDR: 36.200 36.200 SWPR: 2.330 2.330



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/D/E = .406

DATA SET SYMBOL: (RUF001) (RUF003)   
 CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.   
 CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.   
 BETA: .000 .000 .000   
 POWER: .000 1.000 1.000   
 SPRR: 36.200 2.330



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

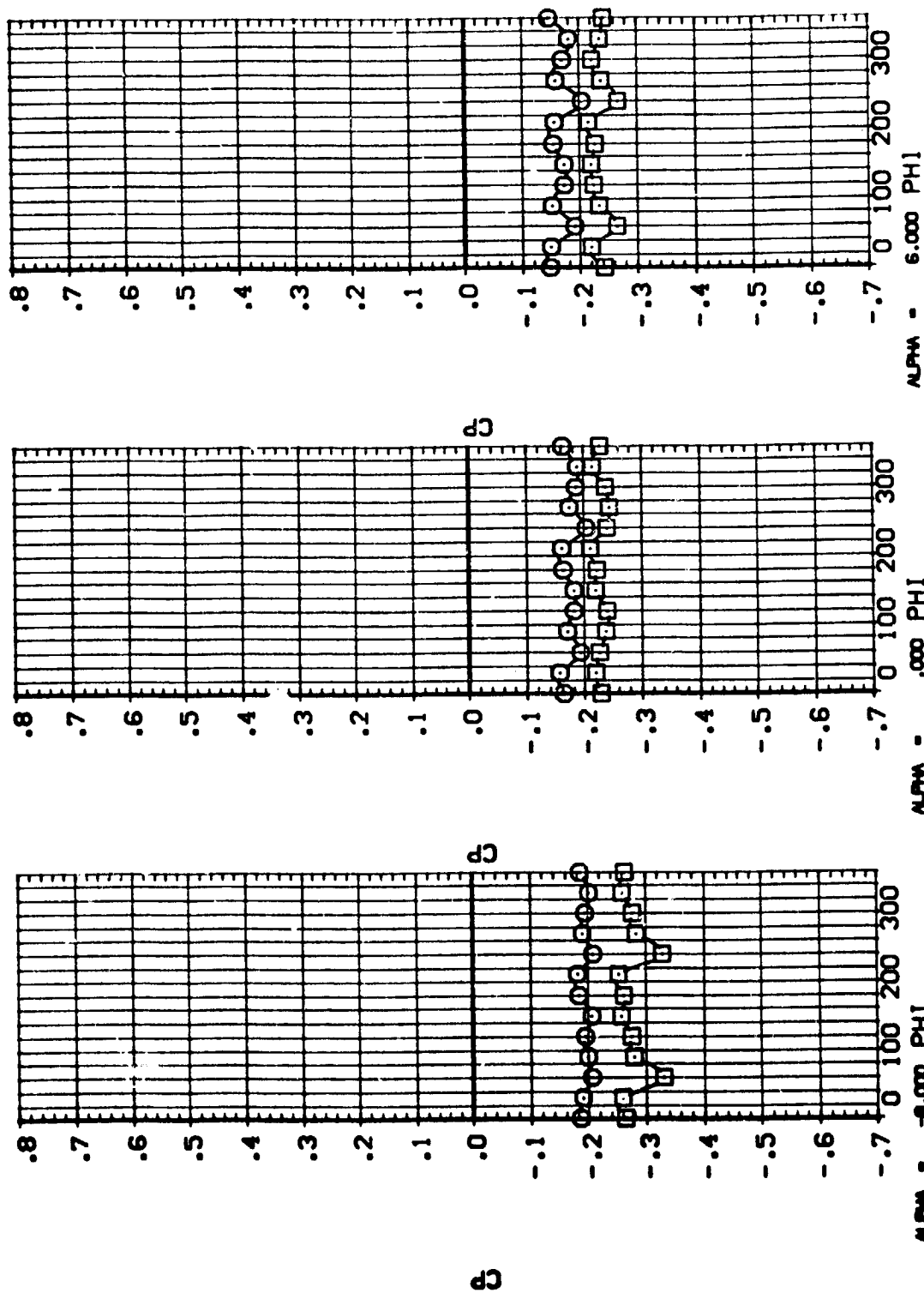
MACH = .900 X/DE = .580



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
(RUF801) CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.  
(RUF803) CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.

BETA POWER OPR SRMPR

.000 .000 .000 36.200 2.330



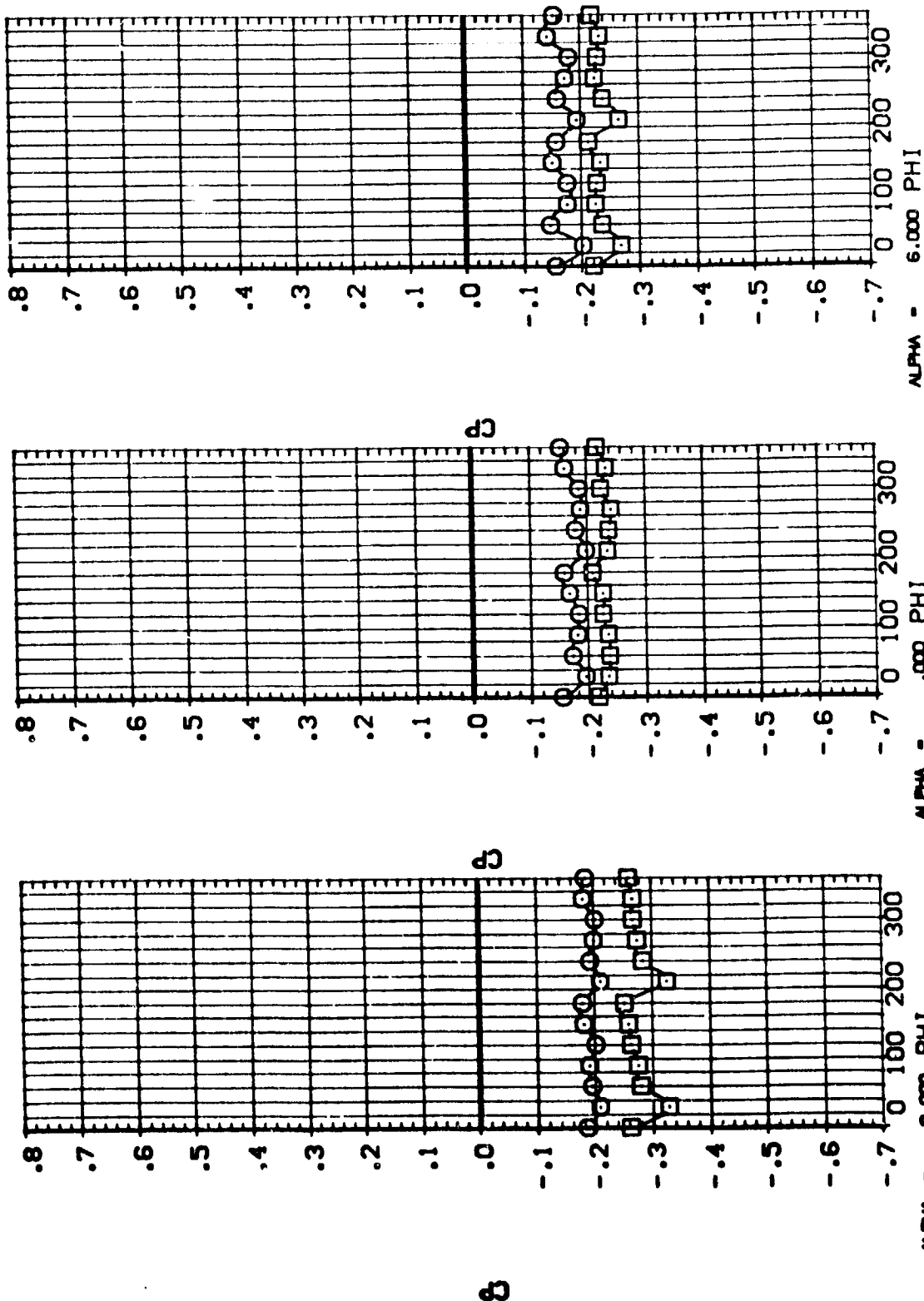
PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .754

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RUFBO1) CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
(RUFBO3) CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.

BETA POWER DPR SRPR  
.000 .000 36.200 2.300  
.000 1.000

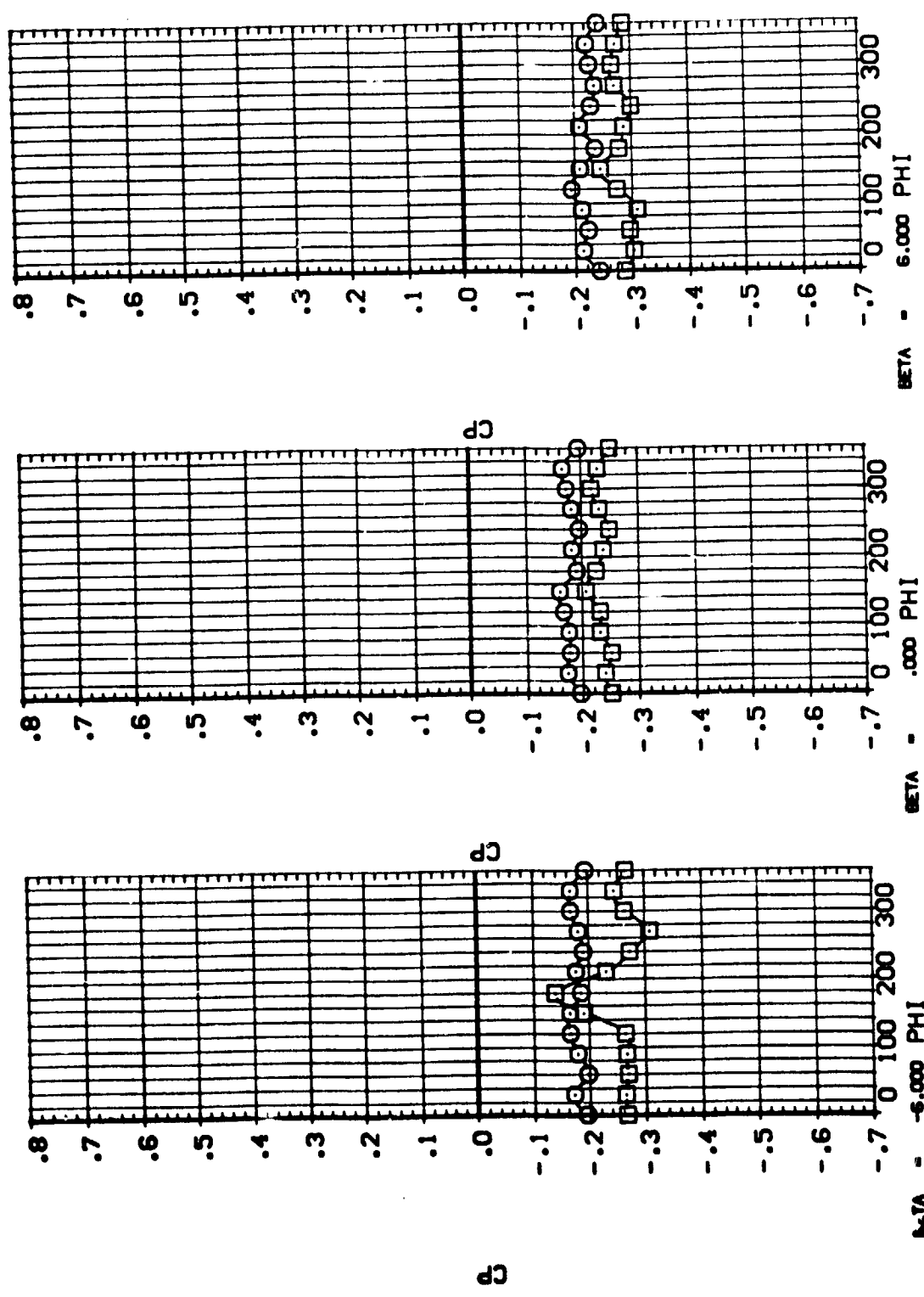


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .928



DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 (A36 02 + T1 + S1) LOWER LH MPS NOZ.  
(RUF802) CAL T14-053 (A36 02 + T1 + S1) LOWER LH MPS NOZ.  
ALPHA POWER CDR SWPR  
.000 .000 36.200 2.300

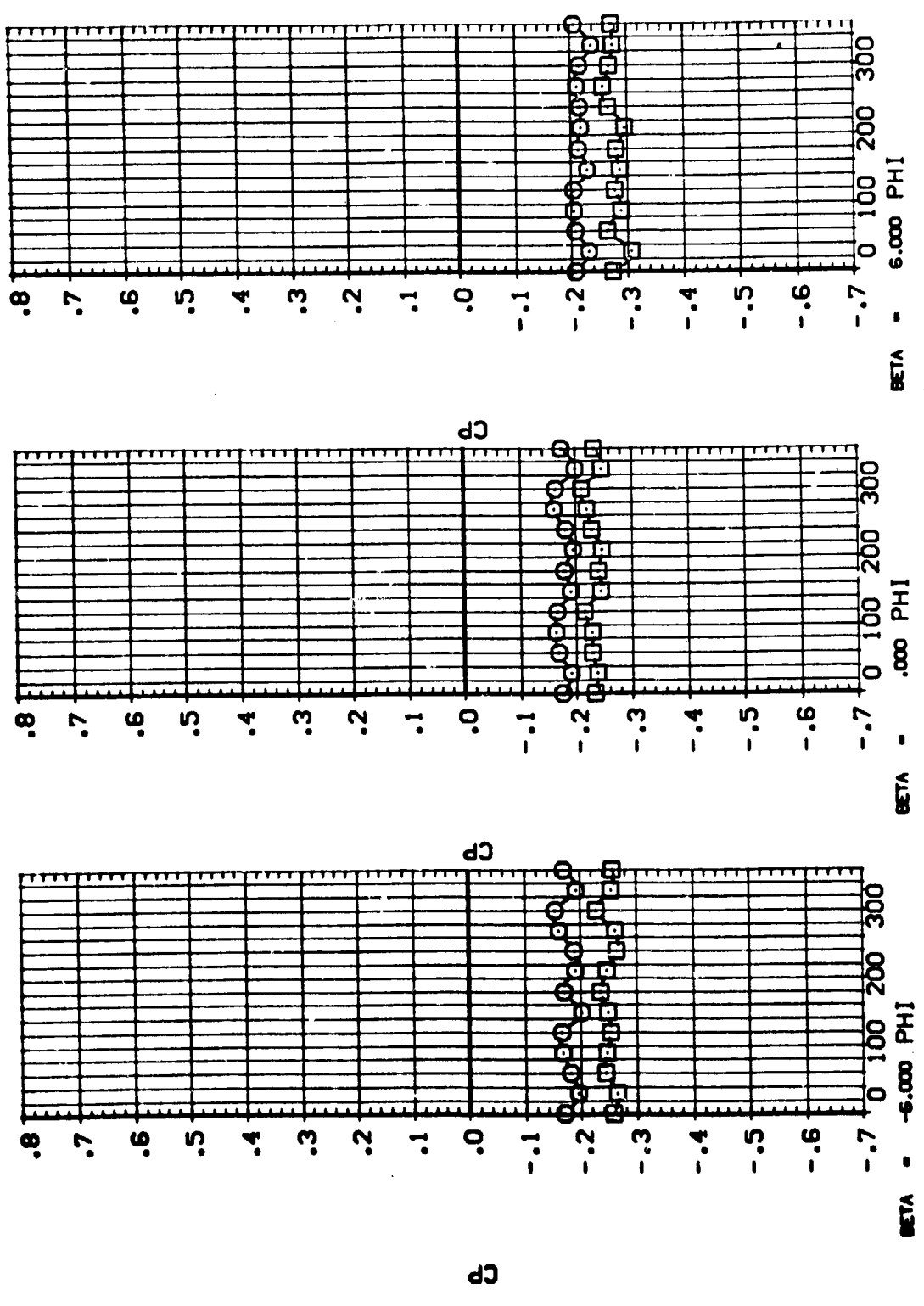


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .058

DATA SET SYMBOL: CAL 114-053 1A36 02 + 11 + S1 LOWER LH MPS NOZ.  
 (RUF802)  
 (RUF804)

ALPHA POWER DPR SQPR  
 .000 .000 36.200 2.330



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

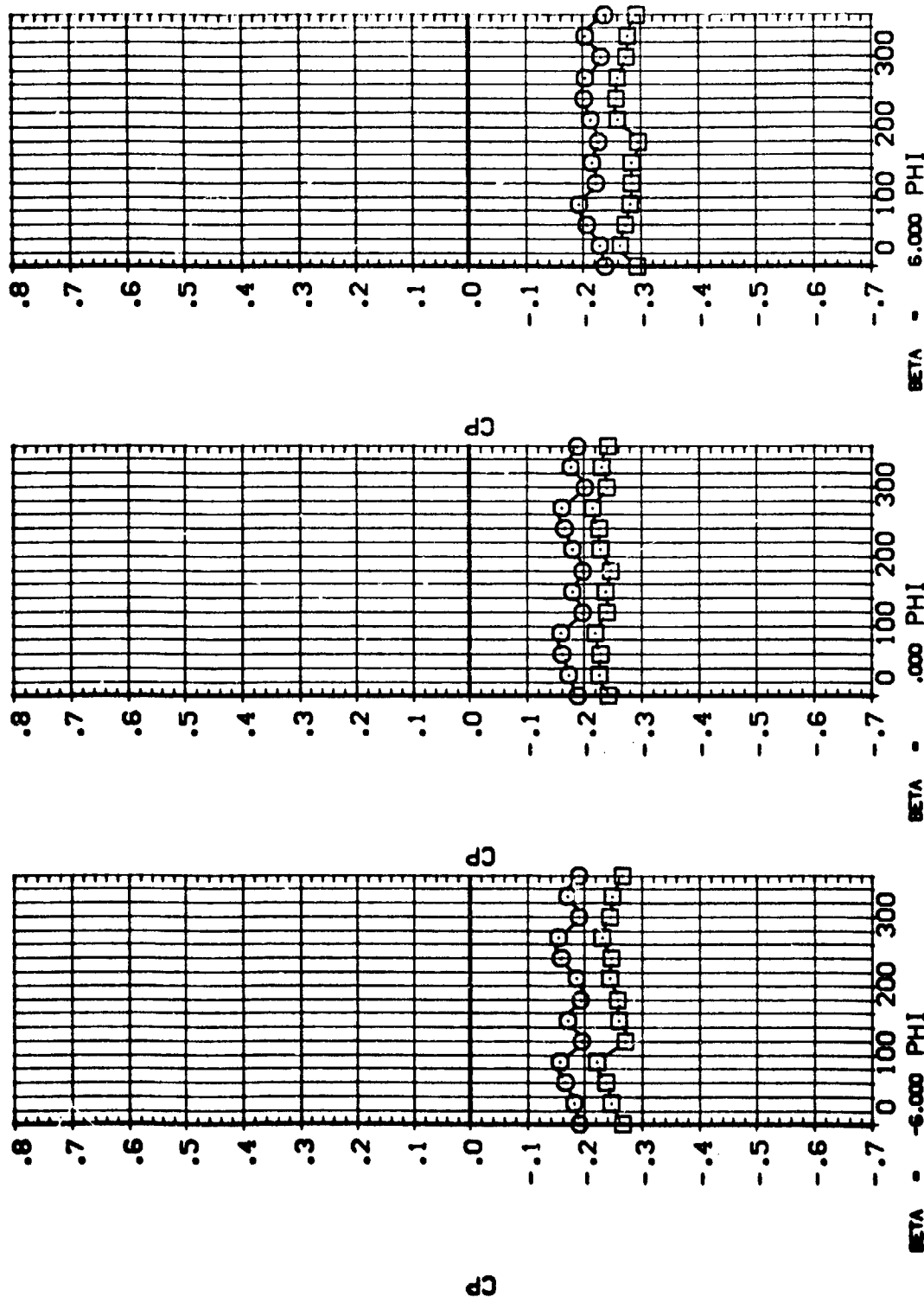
MACH = .900 X/DE = .232





DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
(RUFBD2) CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
(RUFBD4)

ALPHA POWER CPR SWPR  
.000 .000 36.200 2.330  
.000 1.000



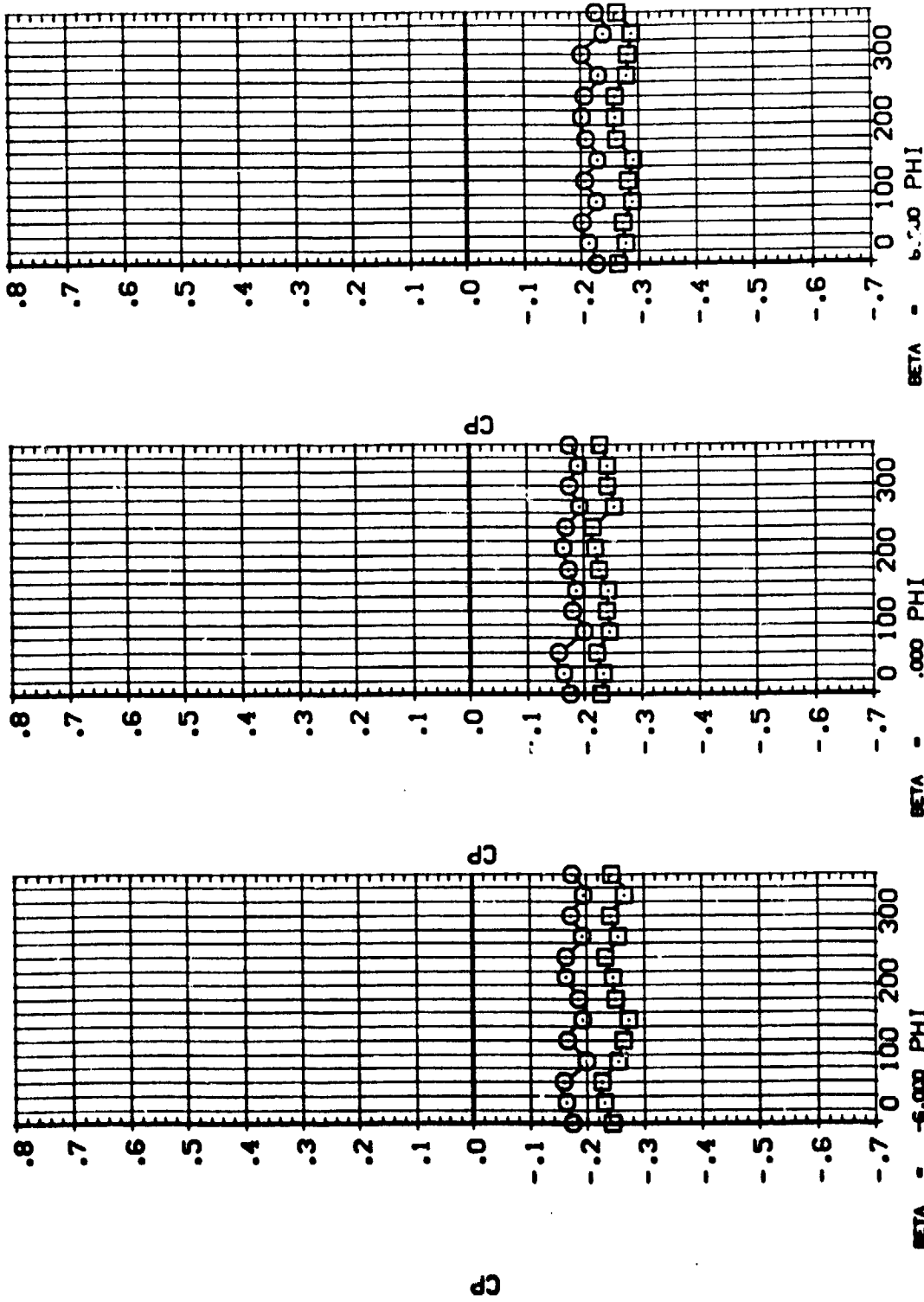
PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .406

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RUF802) 8 CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ:  
 (RUF804) 8 CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ:

ALPHA POWER DPR SRRFR  
 .000 .000 .000 2.330  
 .000 1.000 36.200

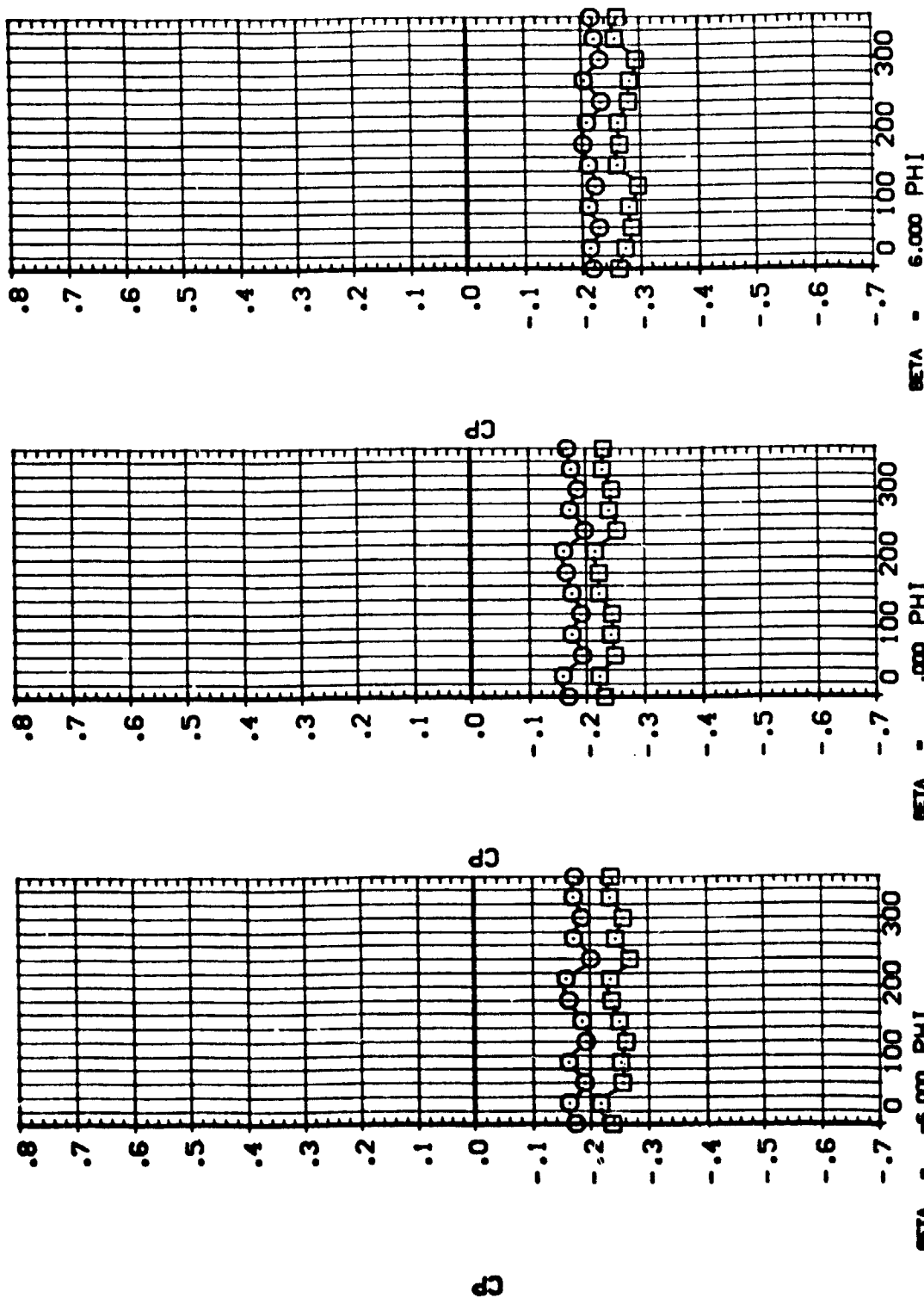


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .580

DATA SET SYMBOL: **Q** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (RUF002) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (RUF004)

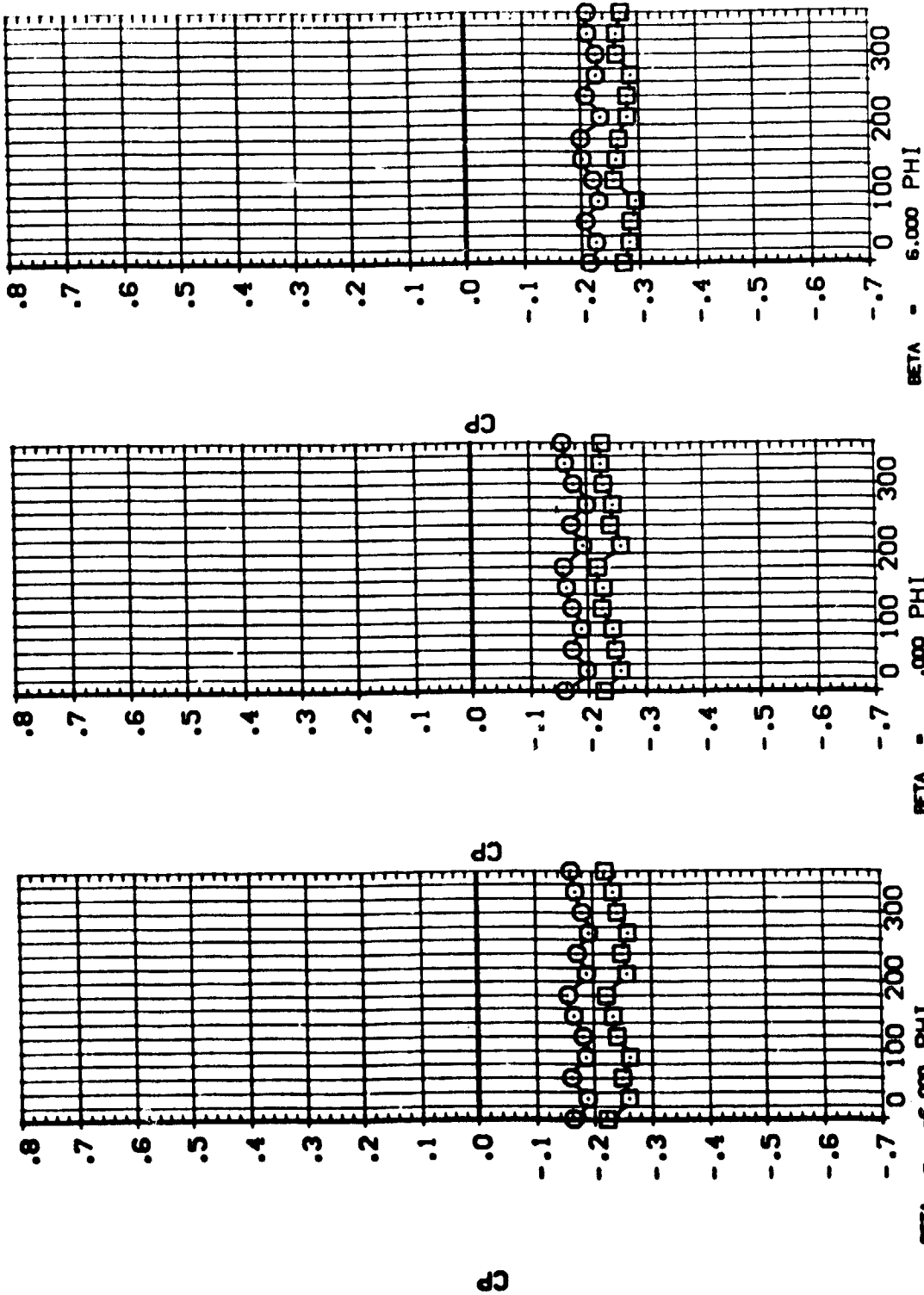
ALPHA .000 .000 .000  
 POWER .000 1.000 1.000  
 DPR 36.200  
 SHPR 2.300



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .754

DATA SET SYMBOL: (RUFBD2) (RUFBD4) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 C2 : T1 : S1 LOWER LH MPS NOZ: ALPHA POWER DPR SRPR .000 .000 36.200 2.330 CAL T14-053 IAS6 C2 : T1 : S1 LOWER LH MPS NOZ:

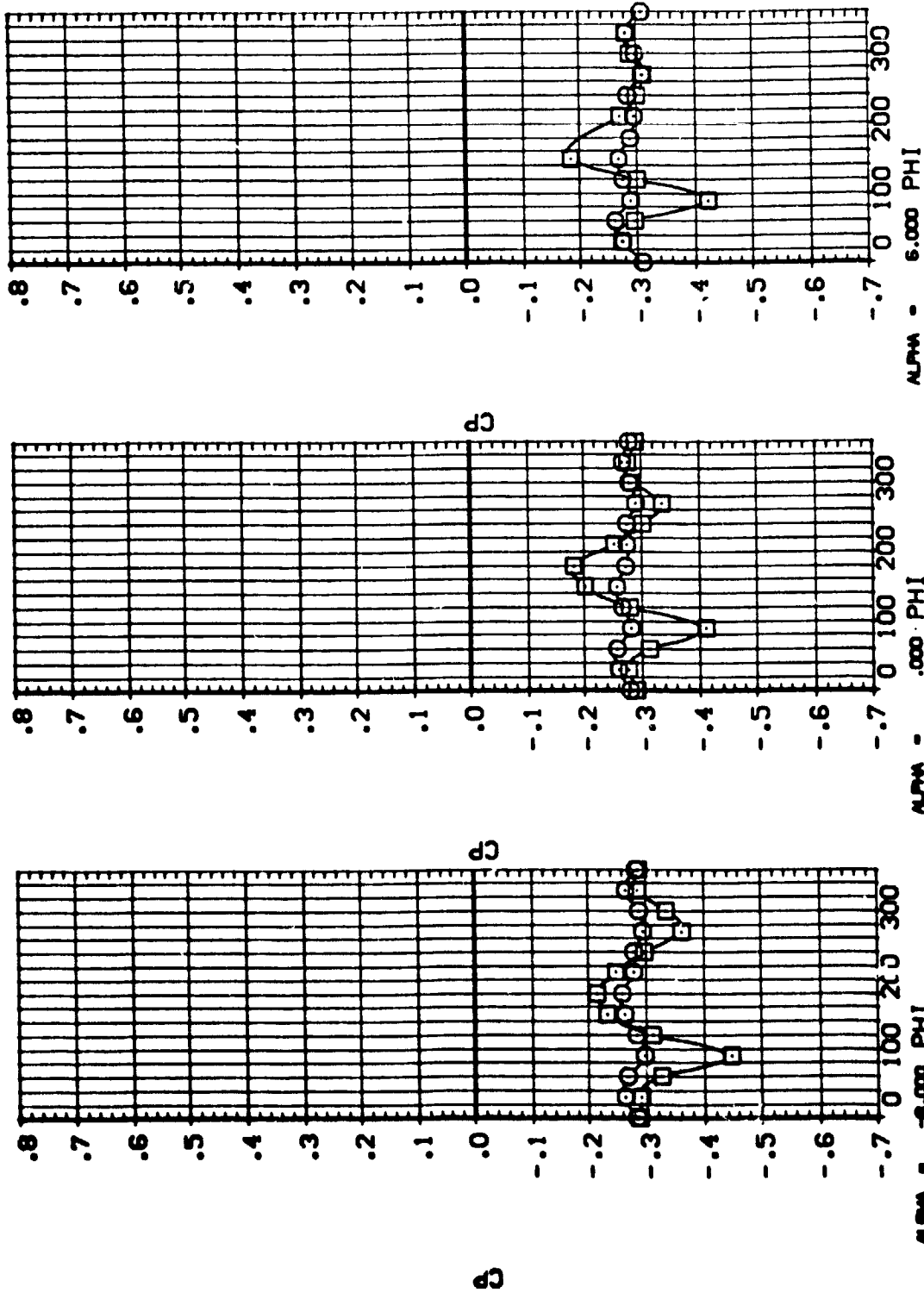


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .928

DATA SET SYMBOL: CAL 114-053 (A36 02 : 11 : S1 LOWER LH MPS NOZ:  
(RUP205) ) CAL 114-053 (A36 02 : 11 : S1 LOWER LH MPS NOZ:  
(RUP207) )

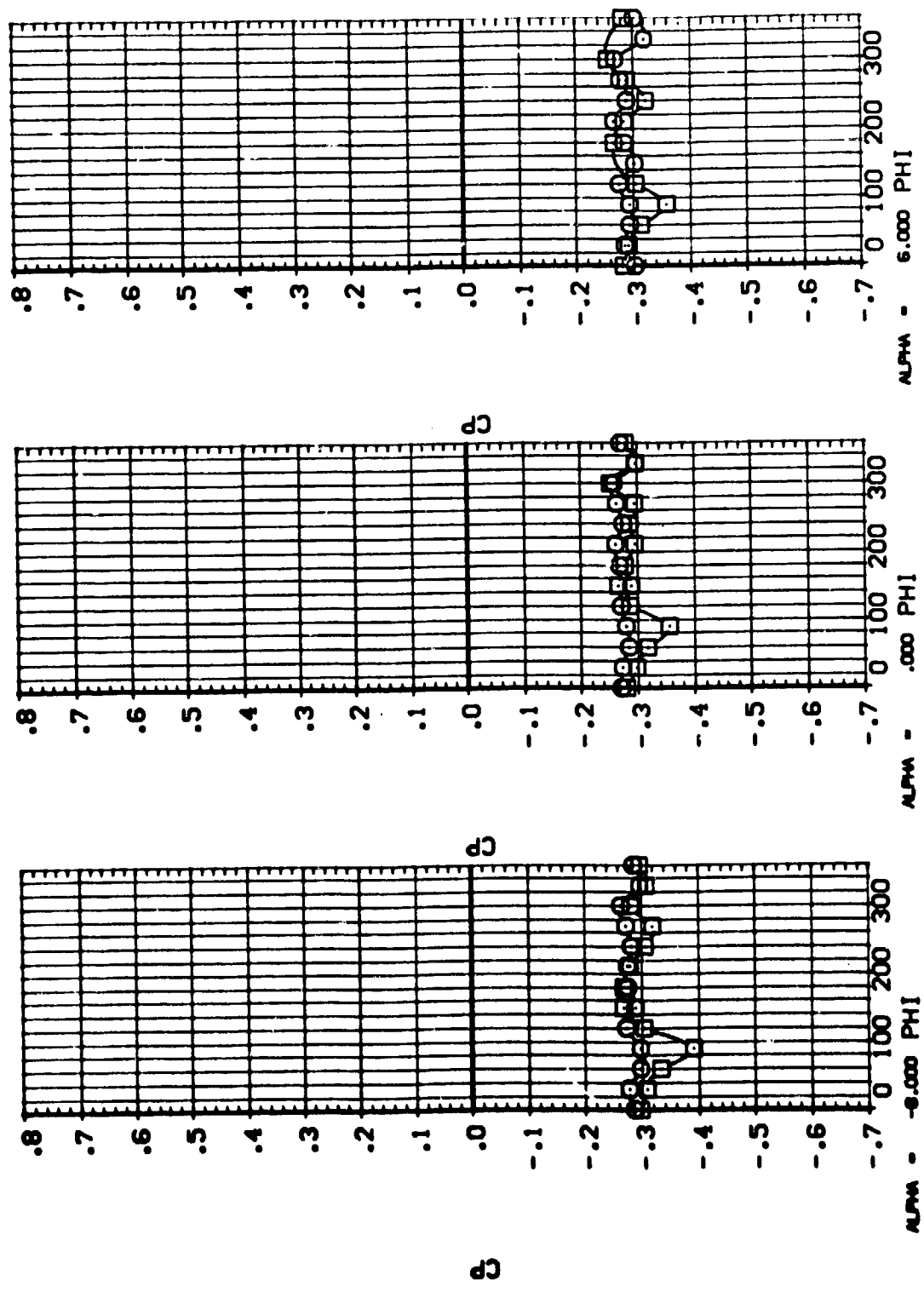
BETA: .000 POWER: .000 GPR: 28.310 SNRPR: 2.000



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: CAL T14-053 (RUF05)   
 CONFIGURATION DESCRIPTION: CAL T14-053 (RUF07)   
 LOWER LH MPS NOZ: 11   
 LOWER LH MPS NOZ: 11   
 BETA: .000   
 POWER: 1.000   
 DFR: 28.310   
 SRFR: 2.020

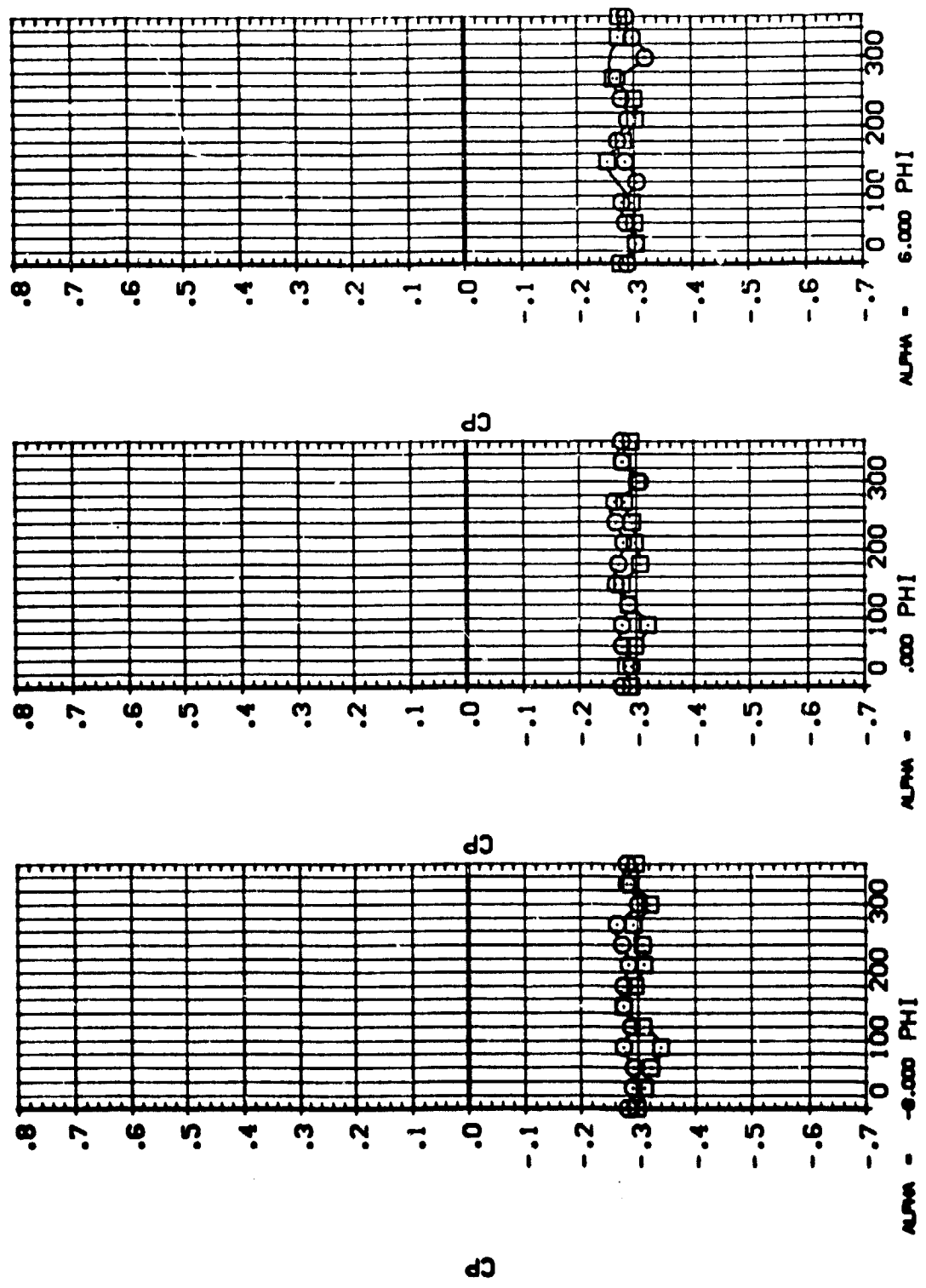


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .232

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DATA SET SYMBOL: B CONFIGURATION DESCRIPTION: CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. BETA: .000 POWER: .000 CFR: 28.310 SFRFR: 2.020  
 (RUF807) CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

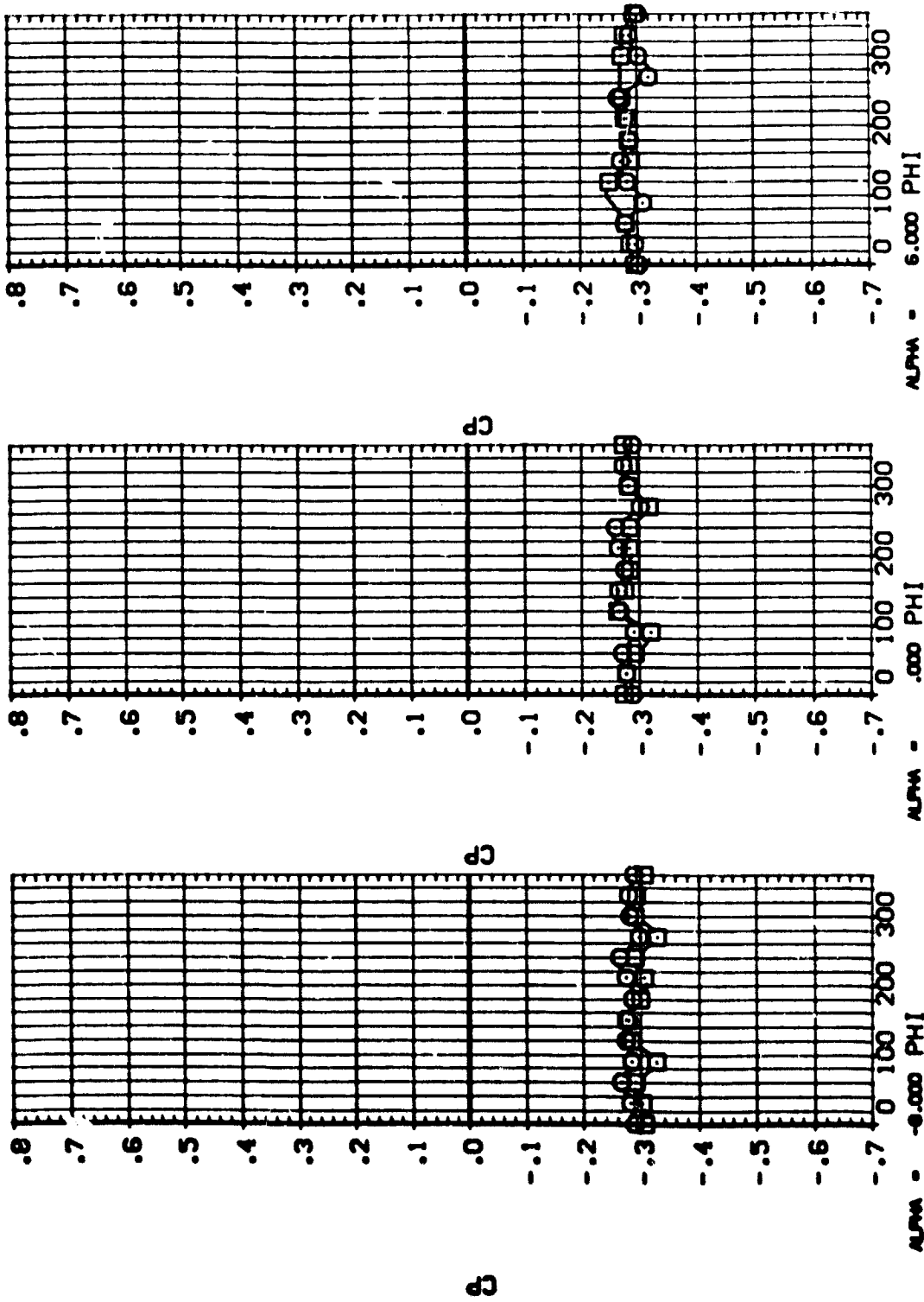
MACH = 1.200 X/DE = .406

DATA SET SYMBOL: CONFIGURATION DESCRIPTION

(RUF805) CAL T14-053 IAS 02 : 11 : S1 LOWER LH MPS NOZ:

(RUF807) CAL T14-053 IAS 02 : 11 : S1 LOWER LH MPS NOZ:

BETA .000 POWER .000 CPR 28.310 SRPR 2.000



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .580

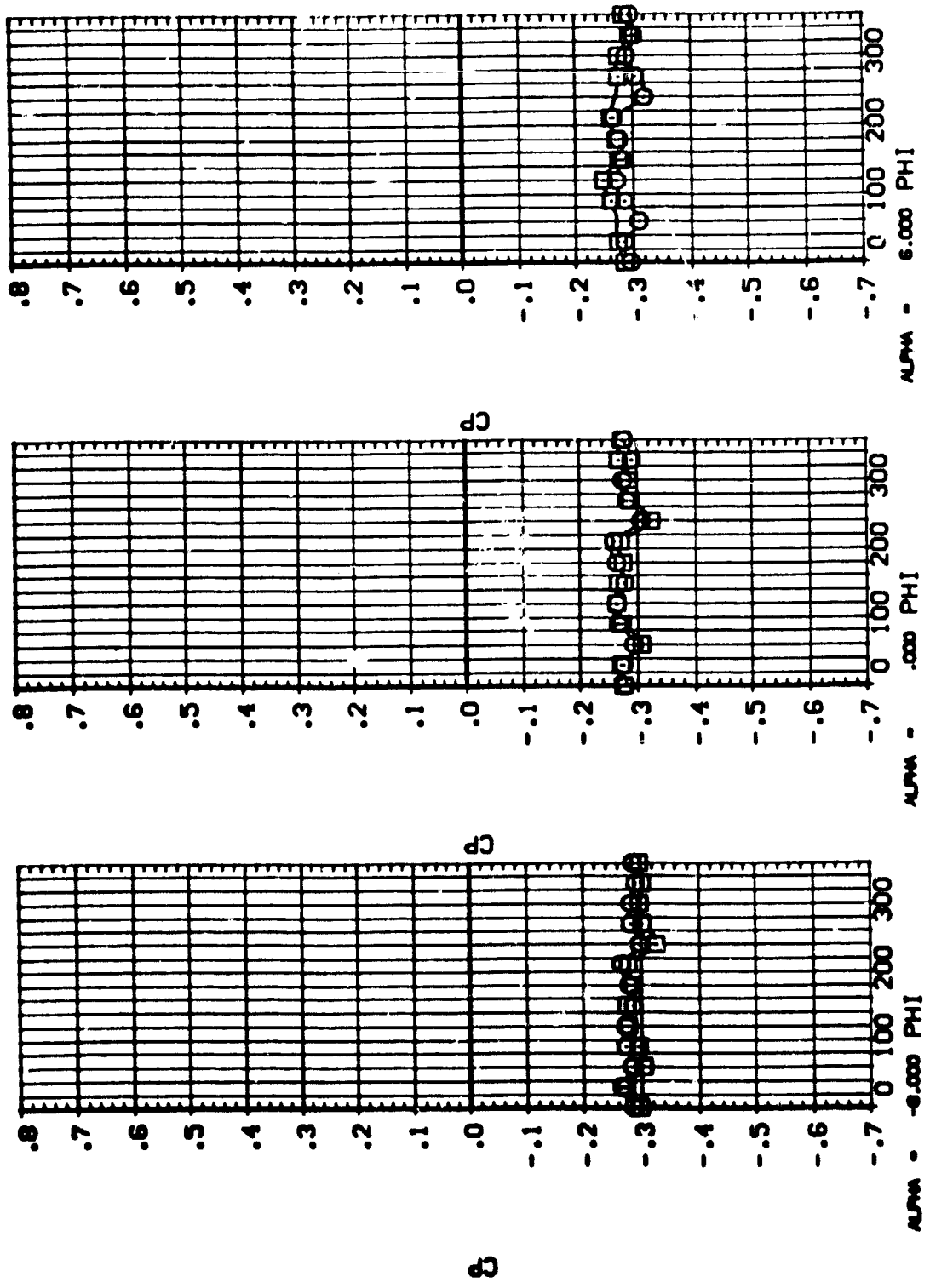


III

DATA SET SYMBOL: 8  
 (RUP05)  
 (RUP07)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:

BETA: .000  
 POWER: 1.000  
 CPM: 28.310  
 SHPR: 2.020

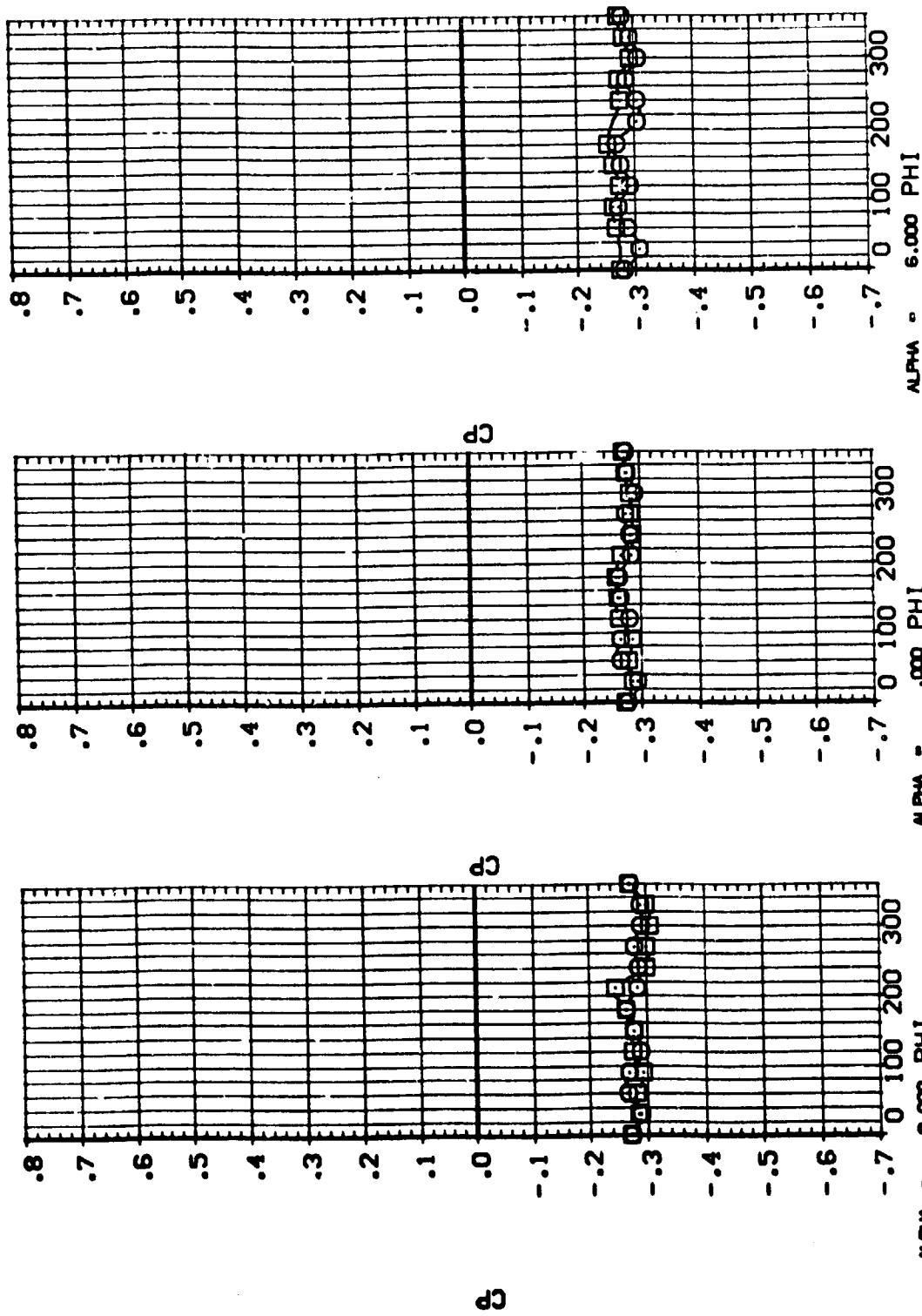


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .754

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (RUF805) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (RUF807) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.

BETA POWER OPR SRPPR  
 .000 .000 28.310 2.020



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

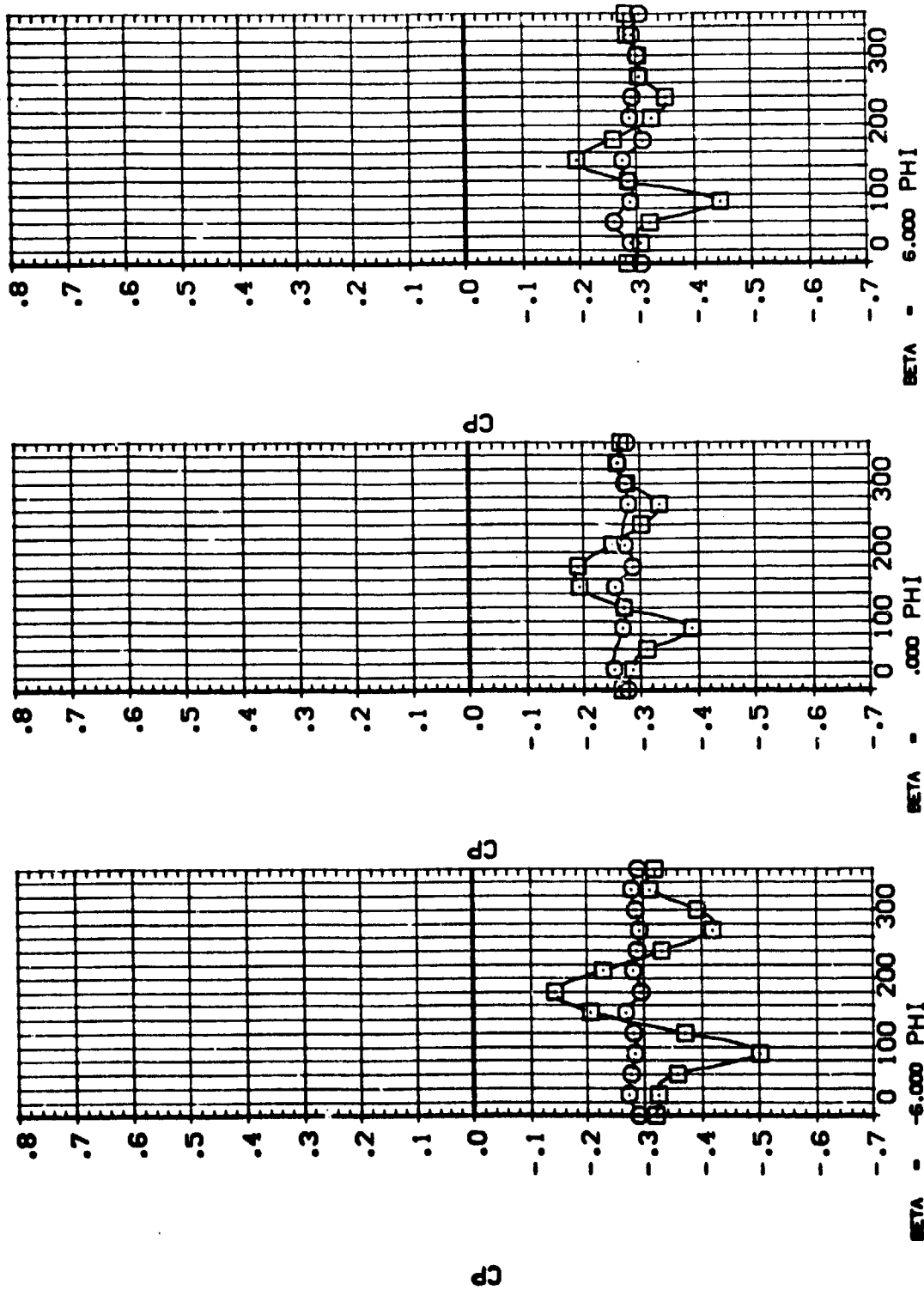
MACH = 1.200 X/DE = .928



DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RUF808) CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ:  
(RUF808) CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ:

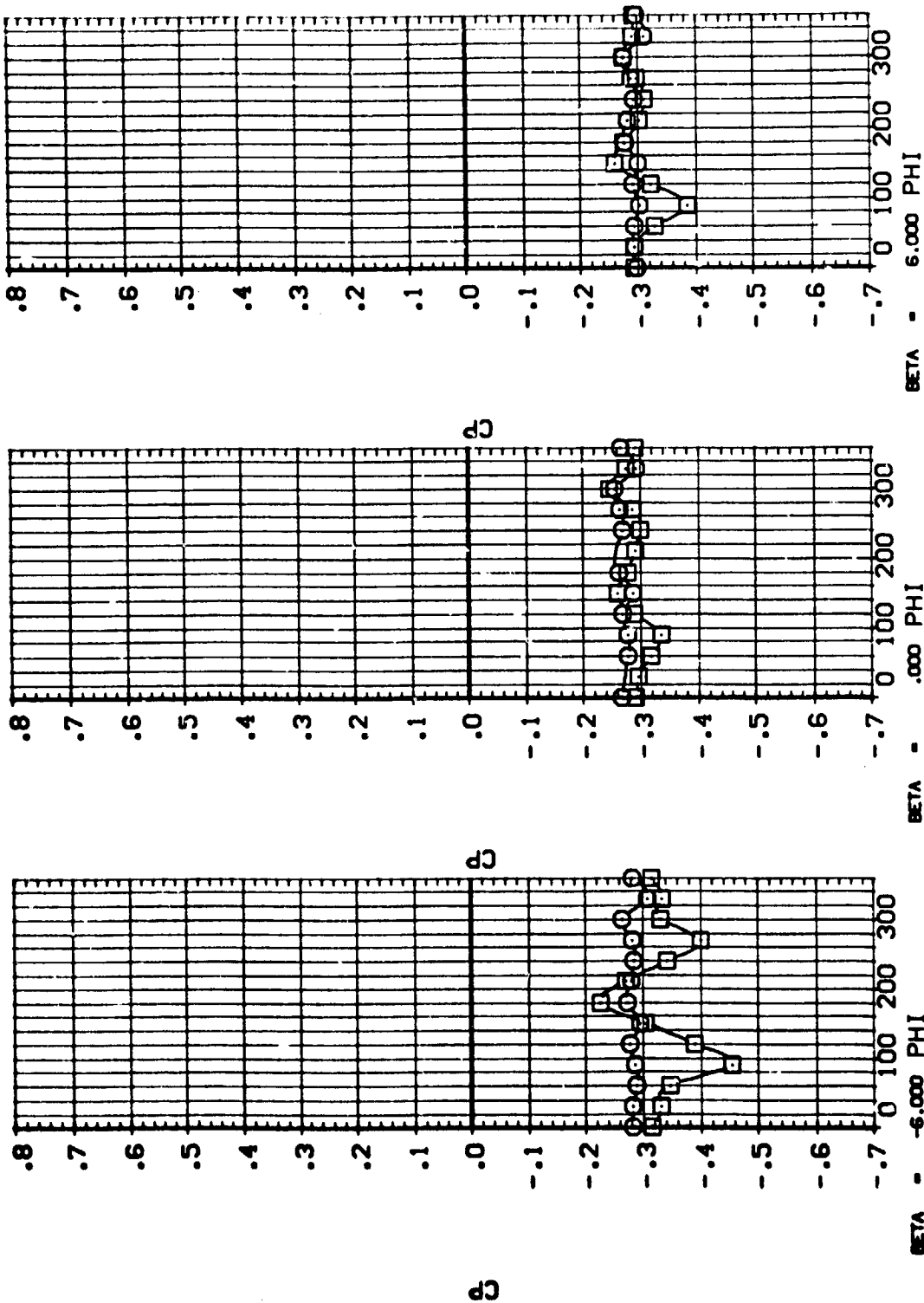
ALPHA POWER CPR SEPR  
:000 :000 28.310 2.020



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: (RUF808) (RUF808)   
 CONFIGURATION DESCRIPTION: CAL 114-053 1A36 02 : T1 : S1 LOWER LH MPS NOZ:   
 ALPHA: .000 .000 .000   
 POWER: 1.000 1.000 1.000   
 QPR: 28.310 28.310 28.310   
 SRPR: 2.020 2.020 2.020

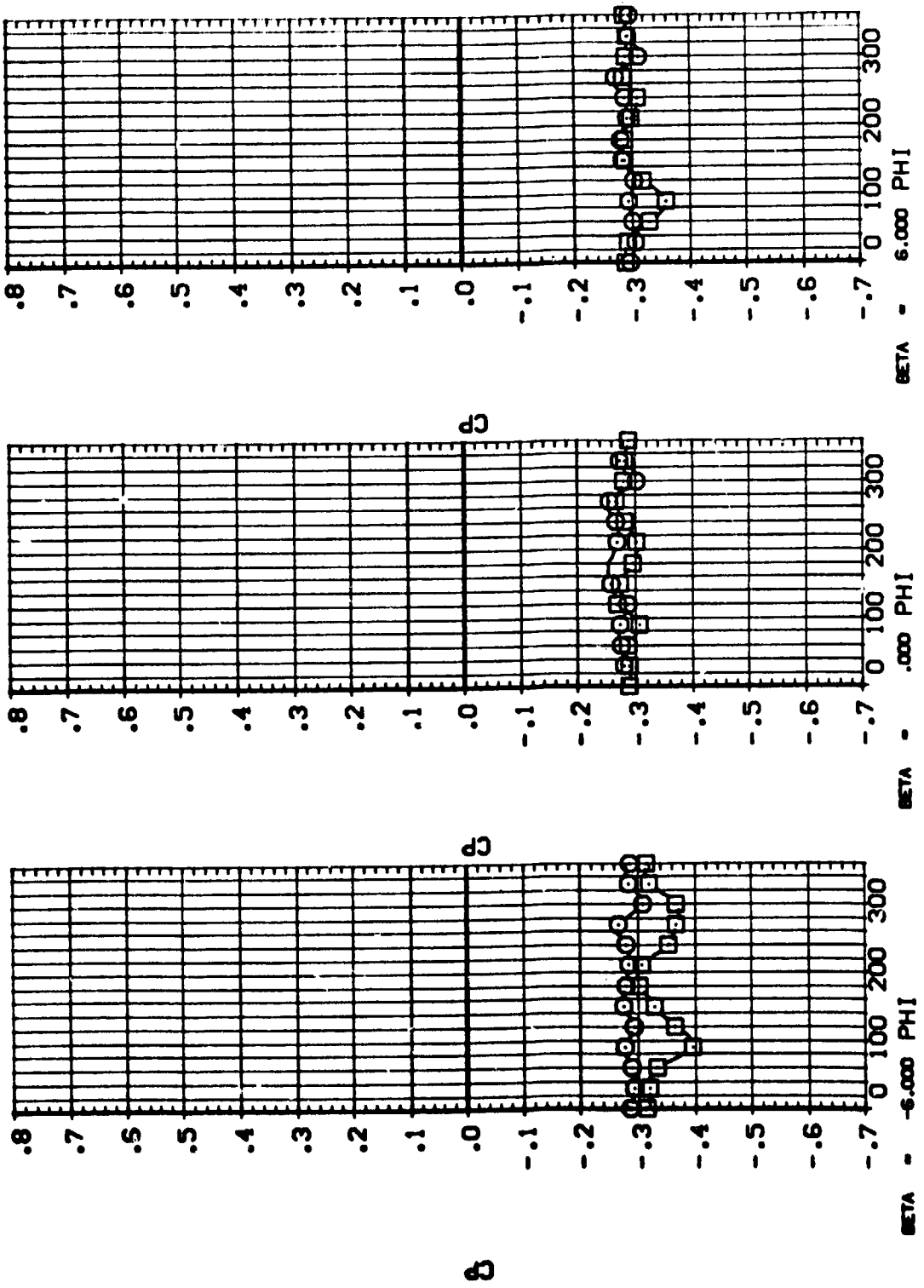


PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .232


11

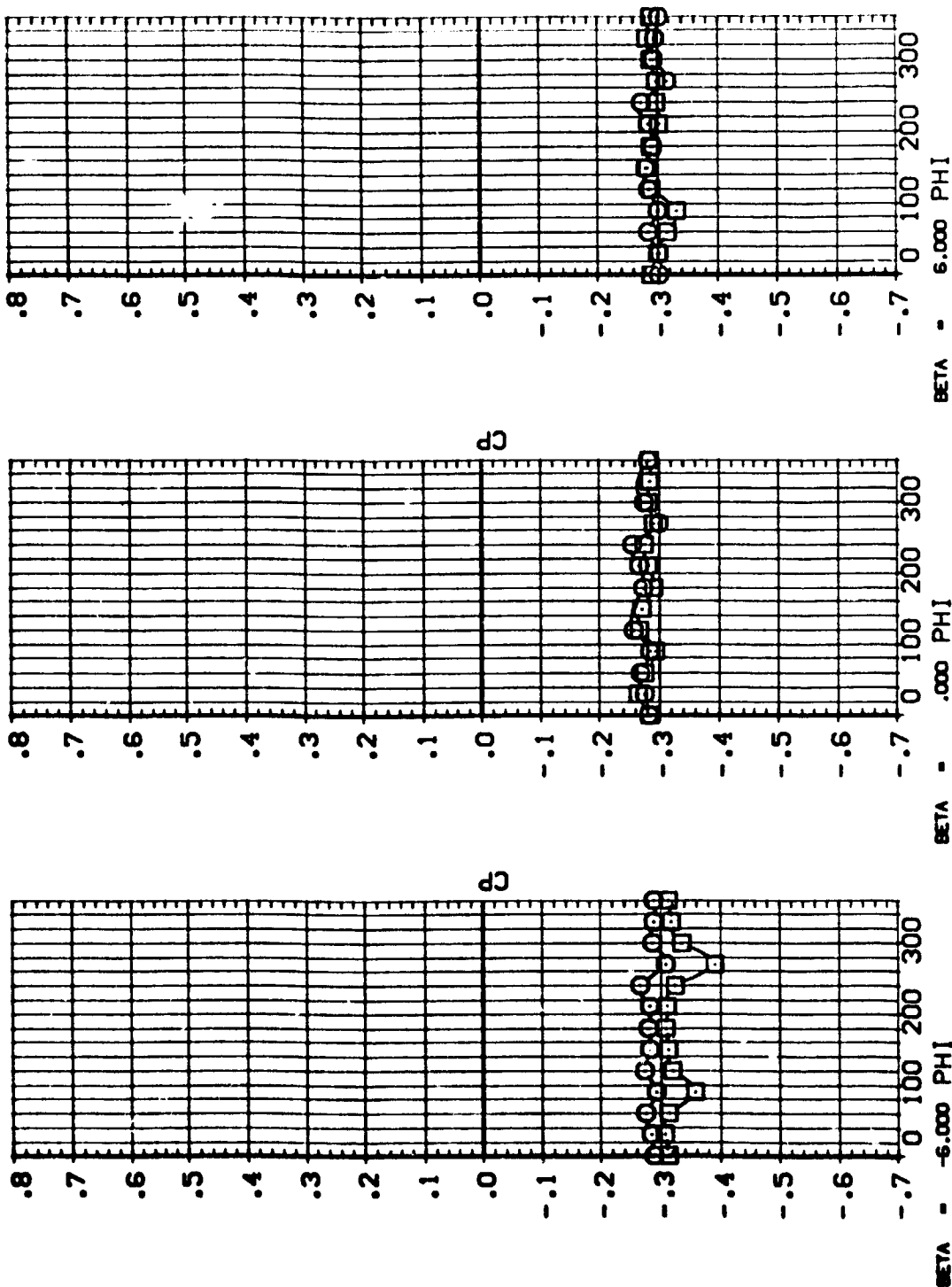
DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    POWER    DPR    SNRPR  
 (RUF806)    CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ    .000    1.000    28.310    2.000  
 (RUF808)    CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: (RUF808)  CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ: .000 ALPHA: .000 POWER: 1.000 DFR: 28.310 SRFR: 2.020



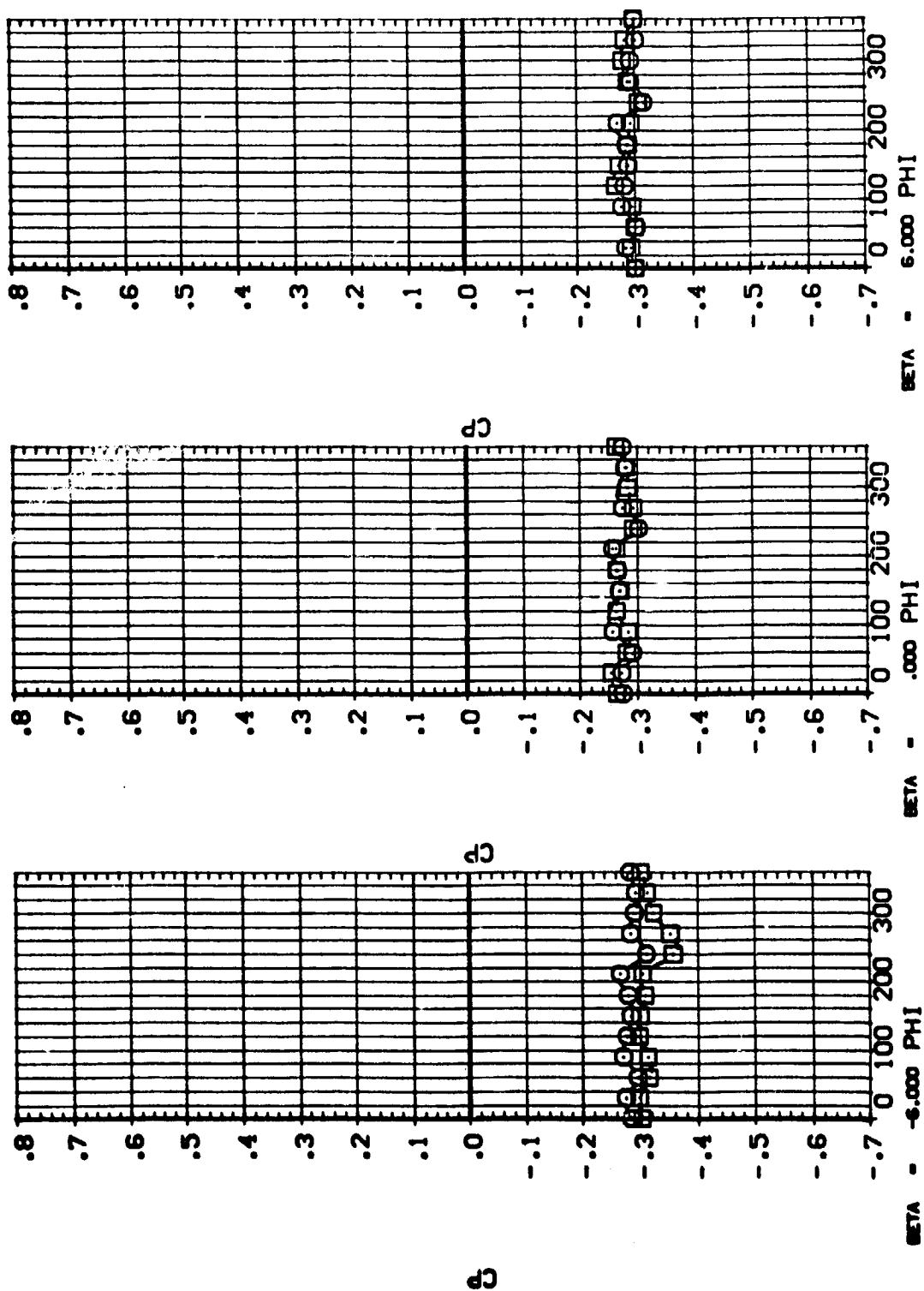
PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .580



1111

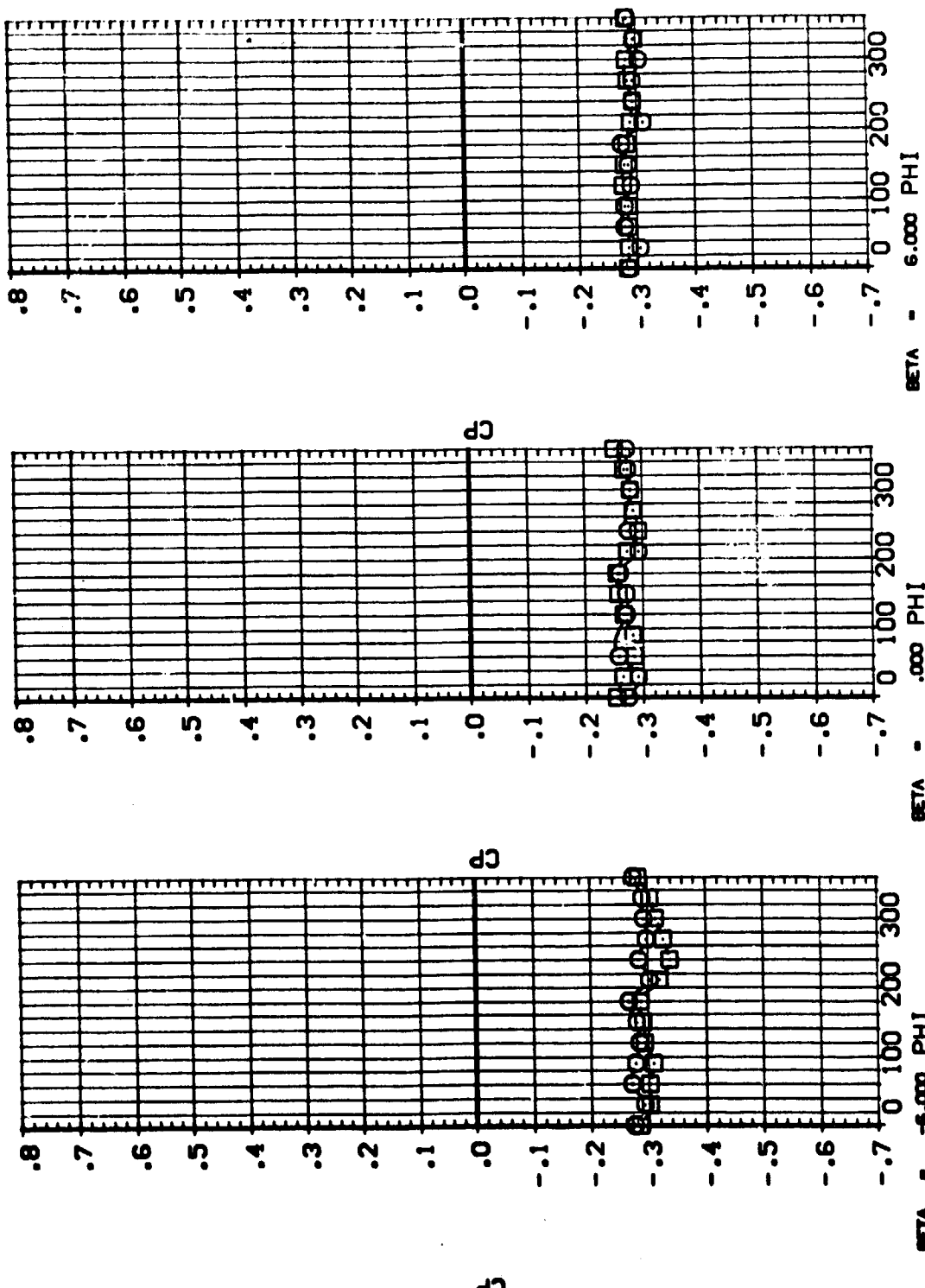
DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
(RUF808) ☐ CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
ALPHA POWER CRR SWPR  
.000 .000 28.310 2.020



PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .754

DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
 (RUF808) (RUF808) (RUF808) ALPHA POWER OPR SRPR  
 .000 1.000 28.310 2.020  
 .000 1.000 28.310 2.020



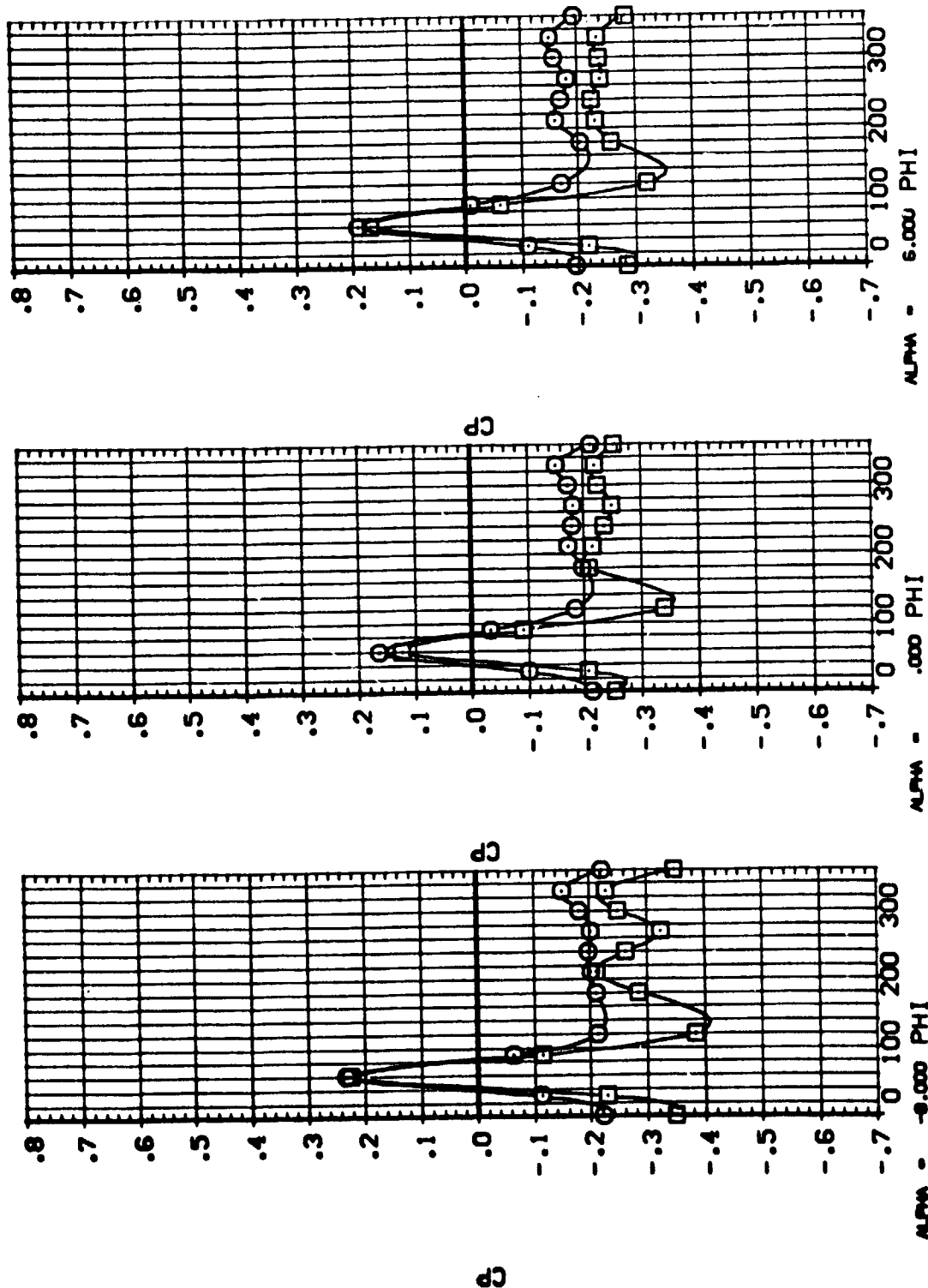
PLUME EFFECT ON LOWER LH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .928



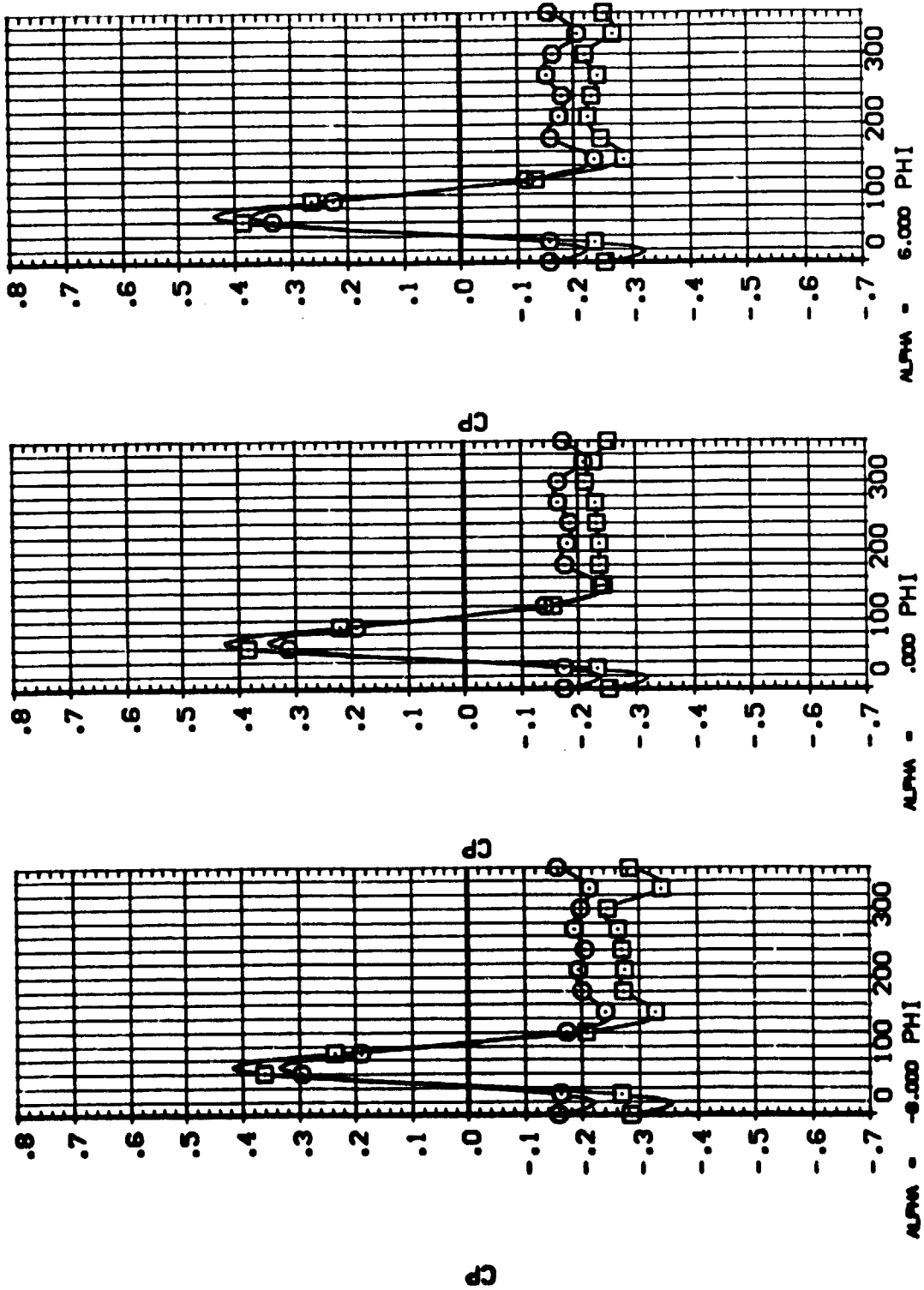


DATA SET SYMBOL: (RUF001) (RUF003) CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: BETA: .000 POWER: .000 1.000 36.200 2.330



≡


DATA SET SYMBOL: CAL T14-053 (A36 02 + T1 + S1) LOWER RH MPS NOZ.  
 (RUP000) 8 CAL T14-053 (A36 02 + T1 + S1) LOWER RH MPS NOZ.  
 BETA POWER CTR SWPR 0.000 1.000 36.200 2.300

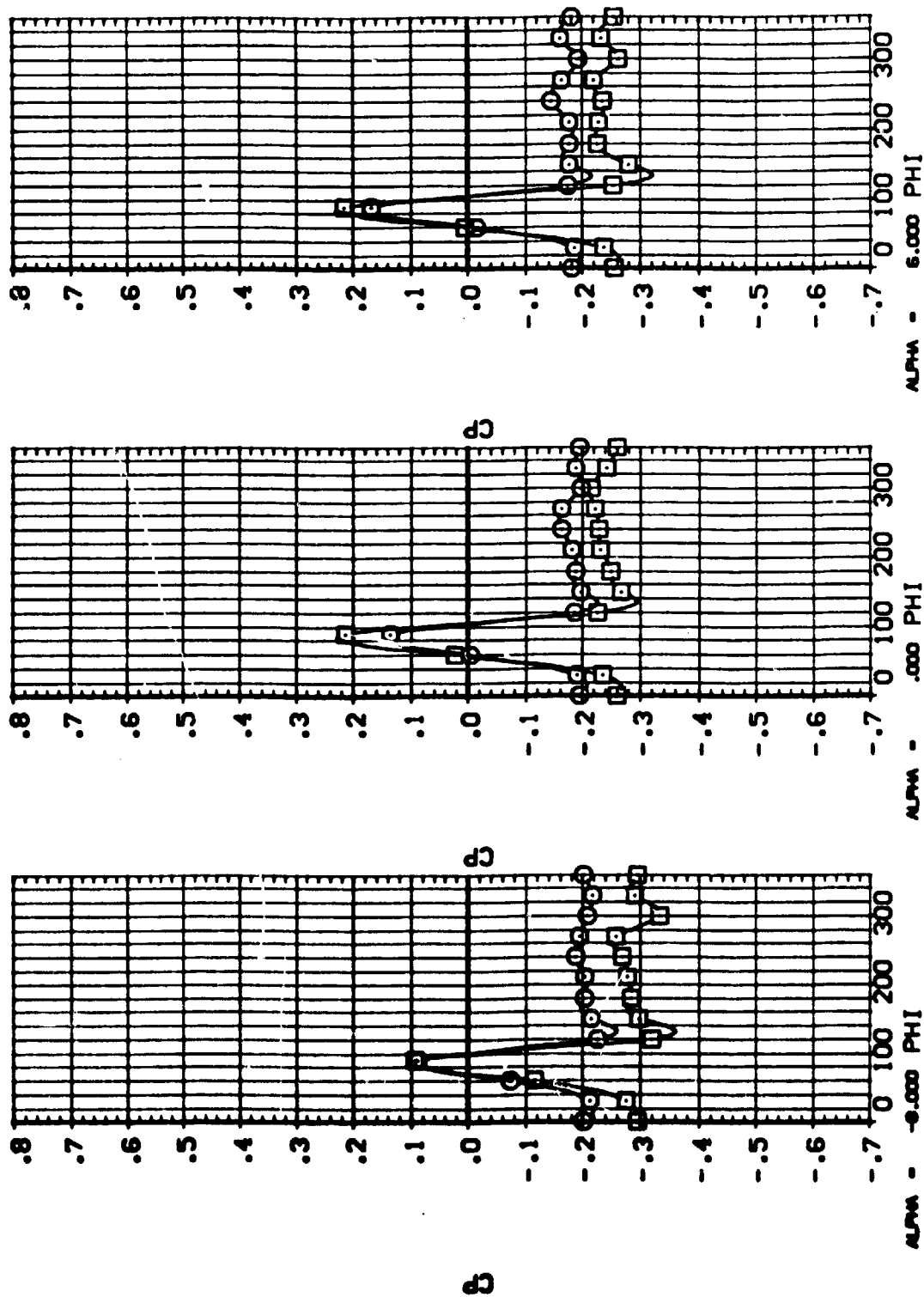


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .232



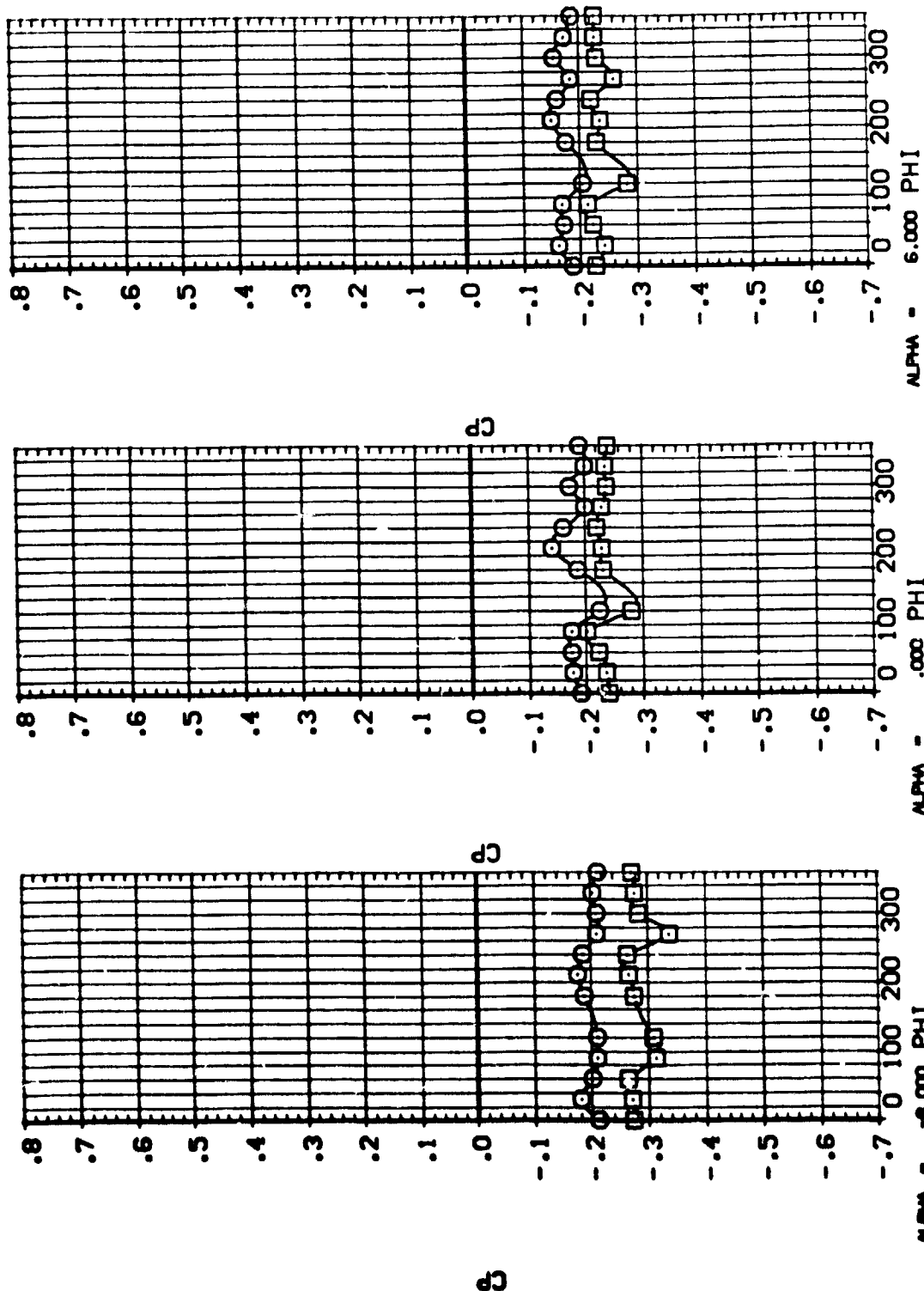
DATA SET SYMBOL: (RUF001) (RUF001)  CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: BETA: .000 POWER: .000 CPM: 36.200 SHPPR: 2.300  
CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: BETA: .000 POWER: .000 CPM: 36.200 SHPPR: 2.300



PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .406

DATA SET SYMBOL: (RUF001) (RUF003) CONFIGURATION DESCRIPTION: CAL T14-053 IAS 82 + T1 + S1 LOWER RH MPS NOZ. CAL T14-053 IAS 82 + T1 + S1 LOWER RH MPS NOZ. BETA: .000 .000 POWER: .000 1.000 CPR: 36.200 SRPR: 2.330

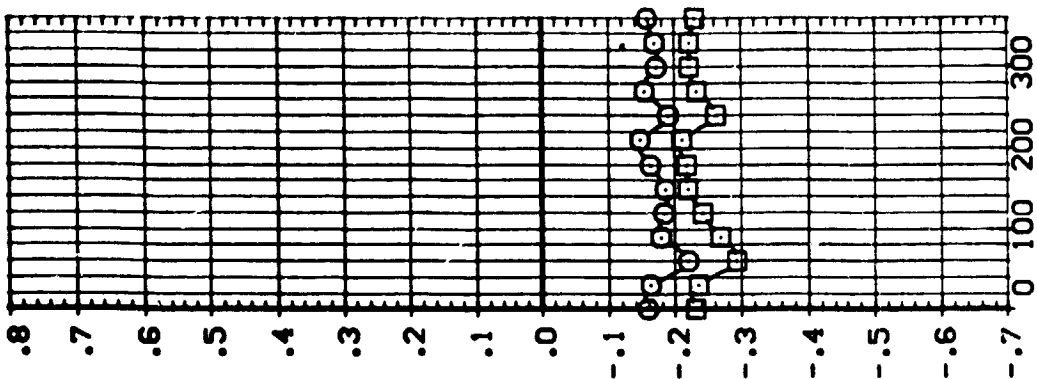
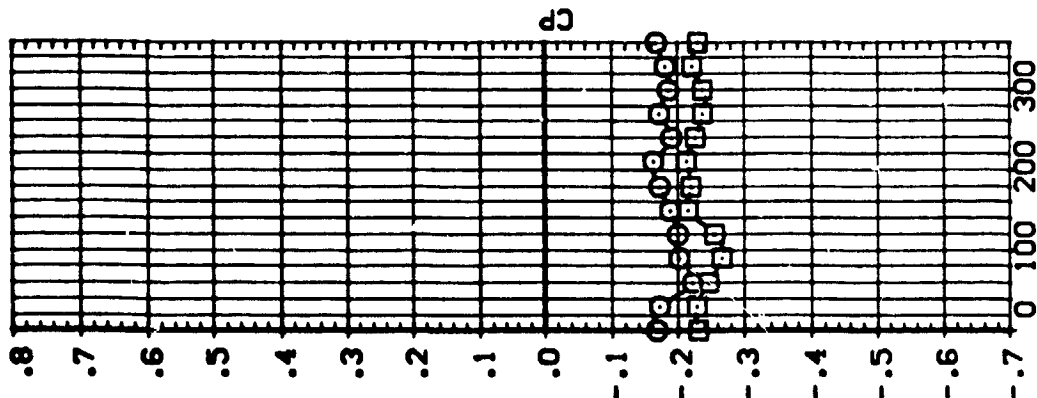
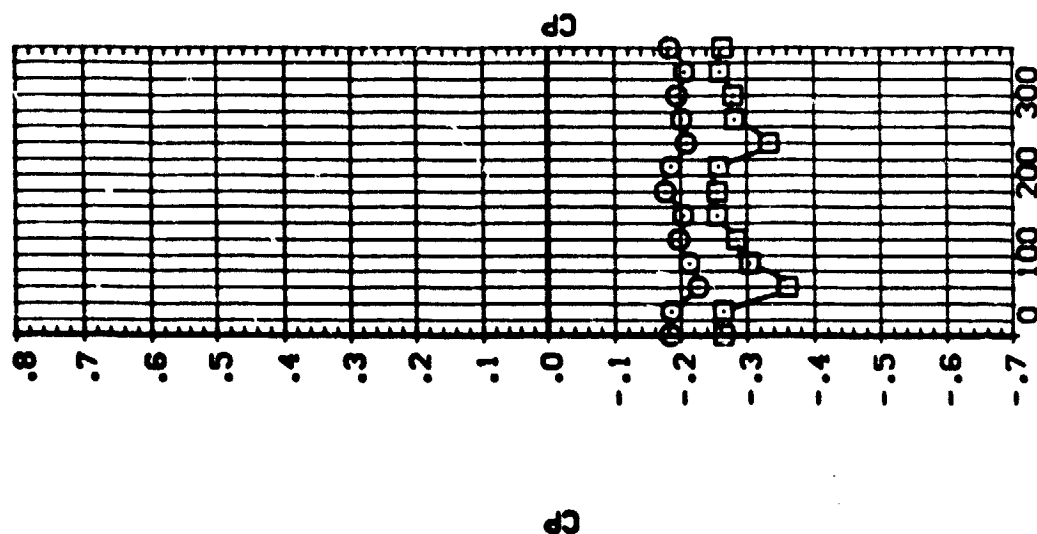


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .580



DATA SET SYMBOL: 8  
CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
BETA: .000  
POWER: .000  
OPR: 36.200  
SWPR: 2.300



ALPHA = -0.000 PHI ALPHA = .000 PHI ALPHA = 6.000 PHI

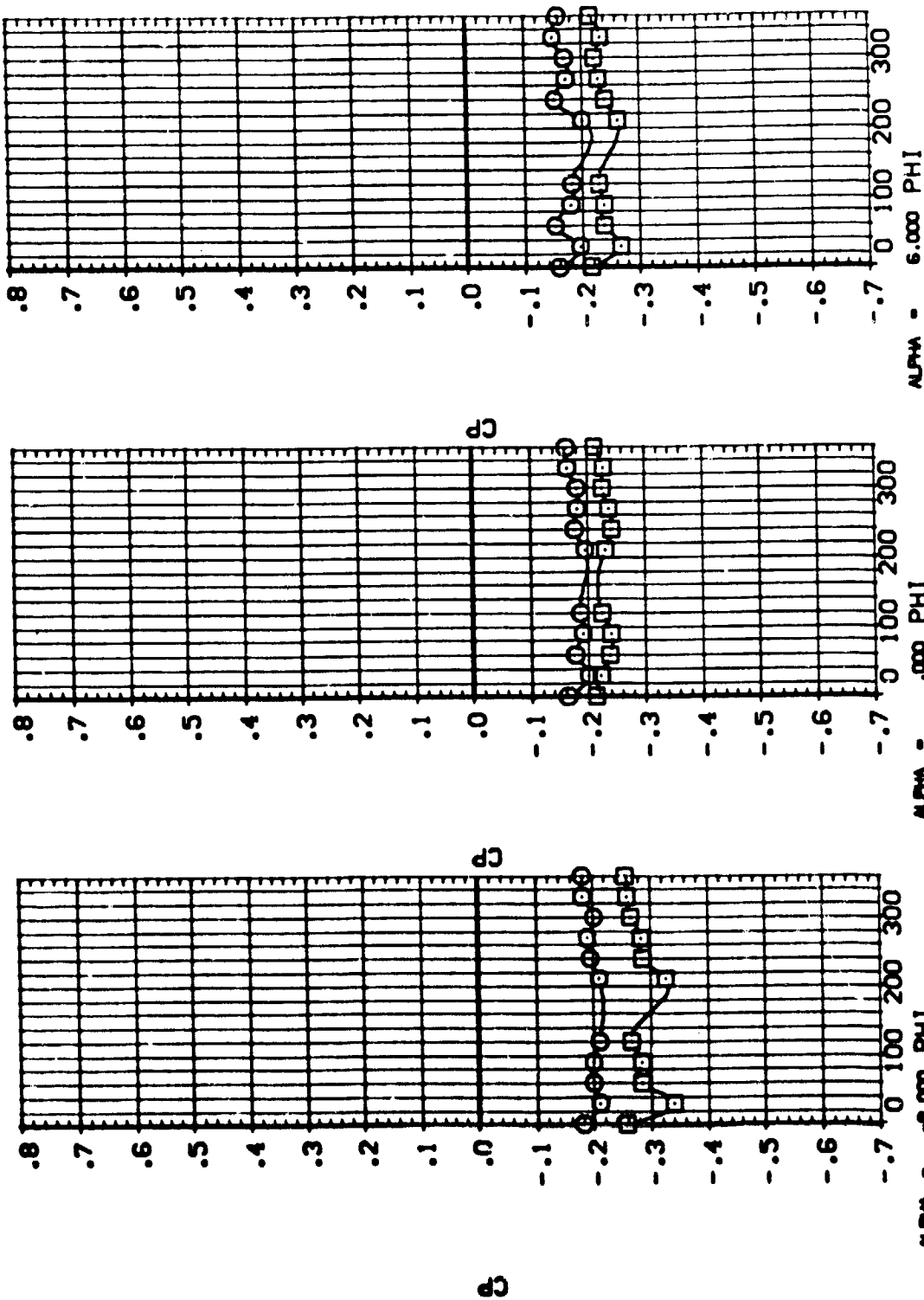
PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .754

DATA SET SYMBOL: 8  
 (ALF001)  
 (ALF003)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.

BETA: .000  
 POWER: .000  
 DPR: 36.200  
 SNRPR: 2.300

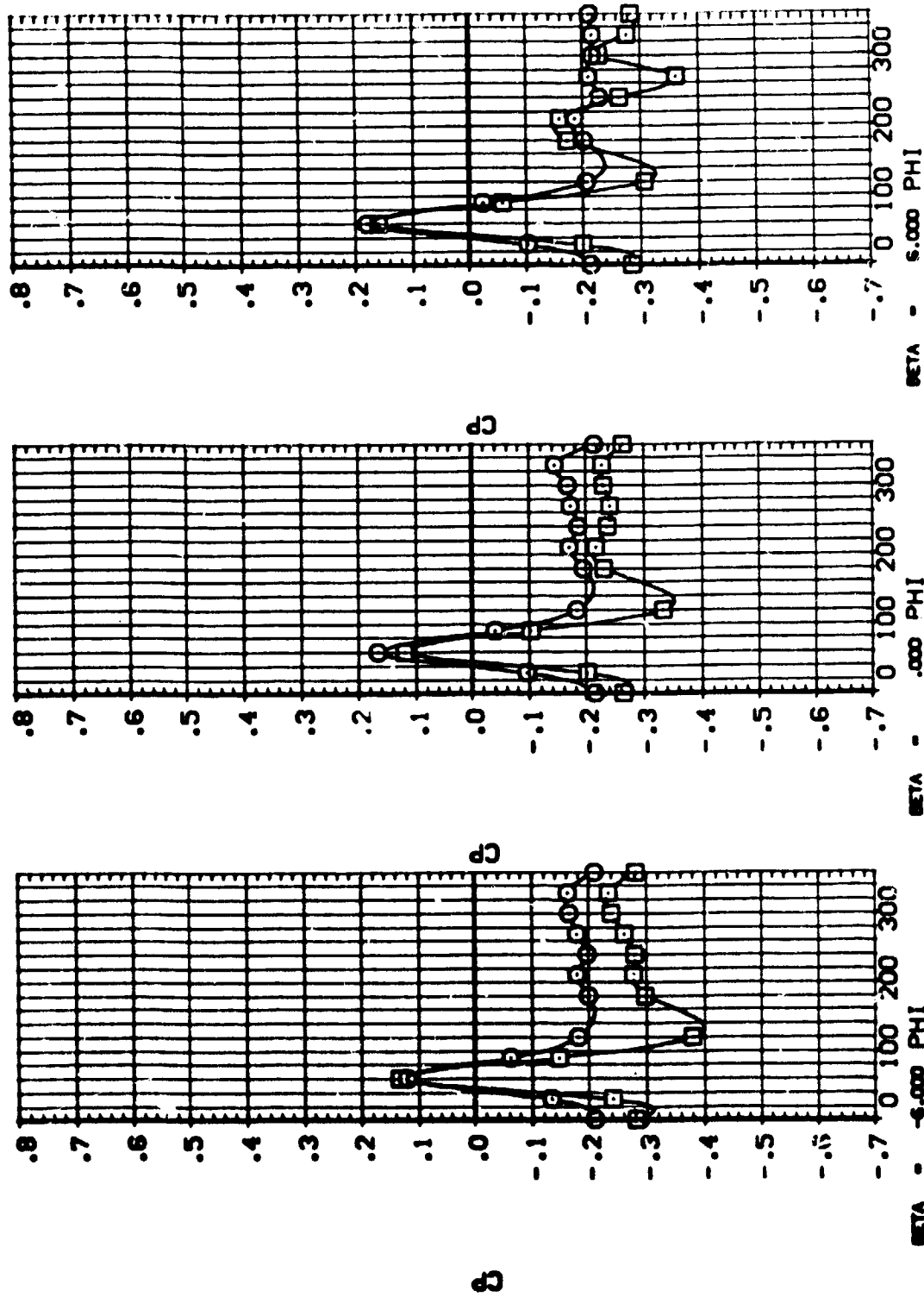


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .928



DATA SET SYMBOL: CAL 714-053 1A36 02 : 71 : S1 LOWER RH MPS NOZ: ALPHA POWER CWR SWPR  
 (RUP002) CAL 714-053 1A36 02 : 71 : S1 LOWER RH MPS NOZ: .000 1.000 36.200 2.300  
 (RUP004)

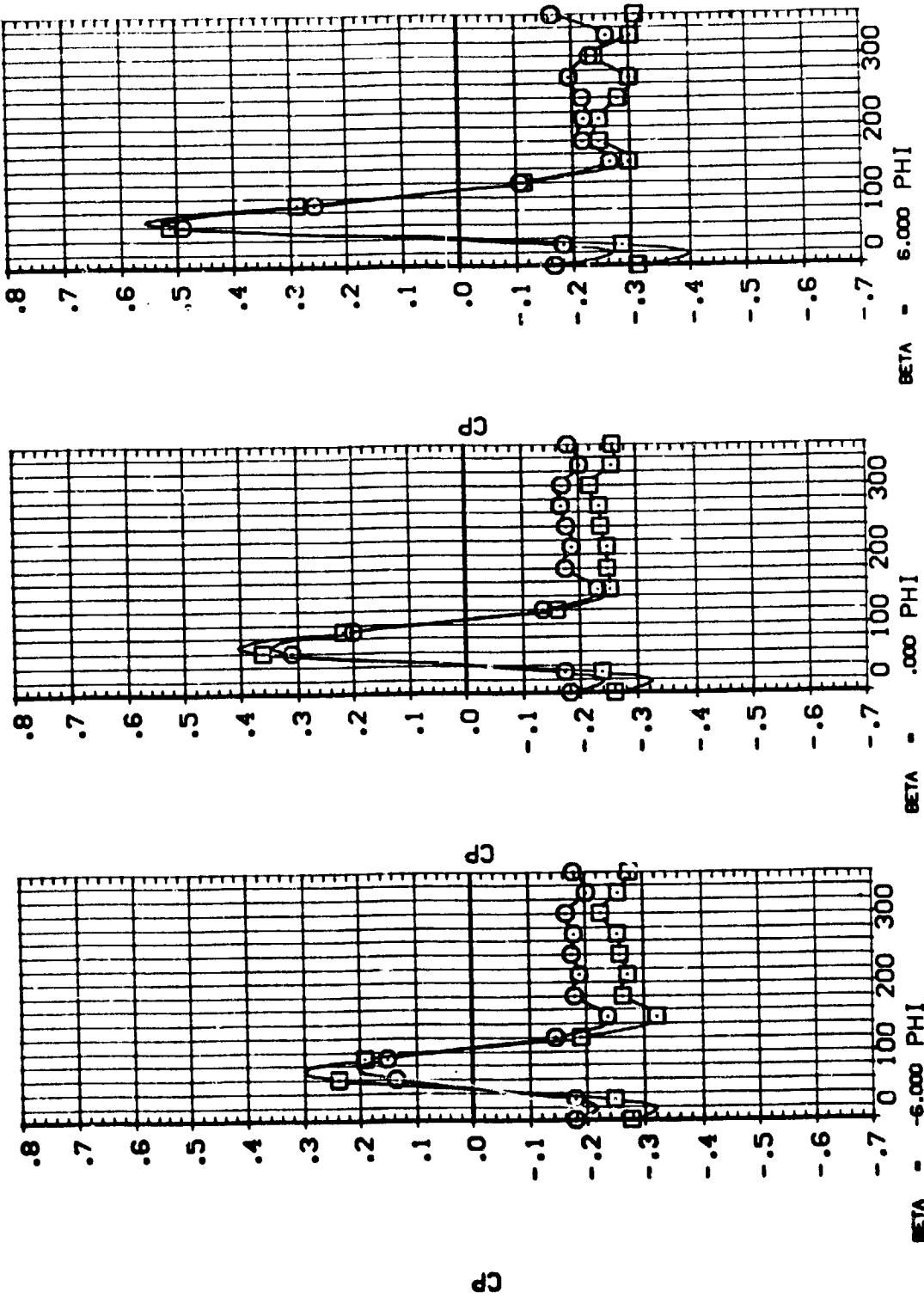


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .058

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (RUF002) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:  
 (RUF004) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:

ALPHA POWER DPR SRPR  
 .000 .000  
 .000 1.000 36.200 2.300

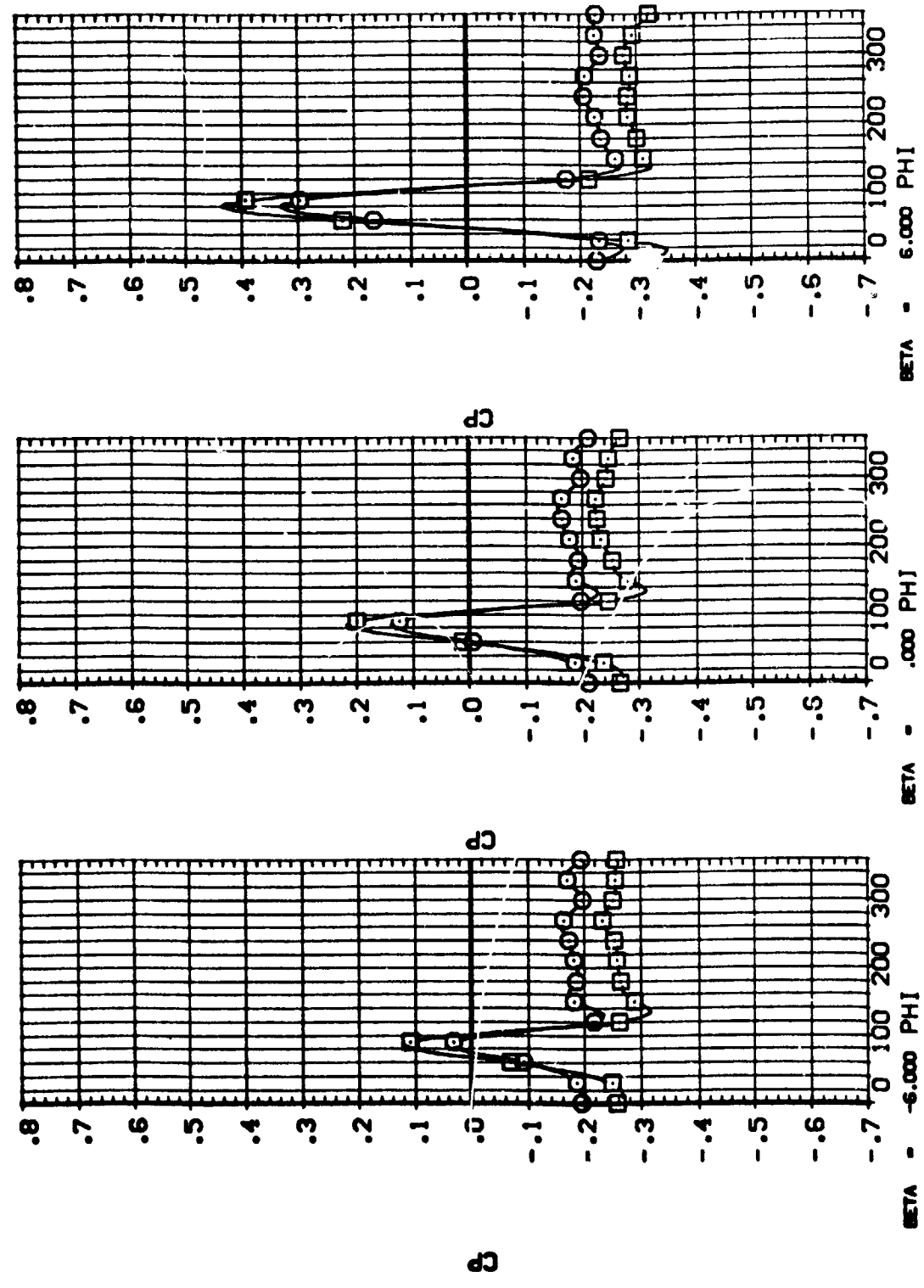


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .232



DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA POWER CFR SWPR  
 (RUF002) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ: .000 1.000 36.200 2.300  
 (RUF004) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ: .000 1.000 36.200 2.300

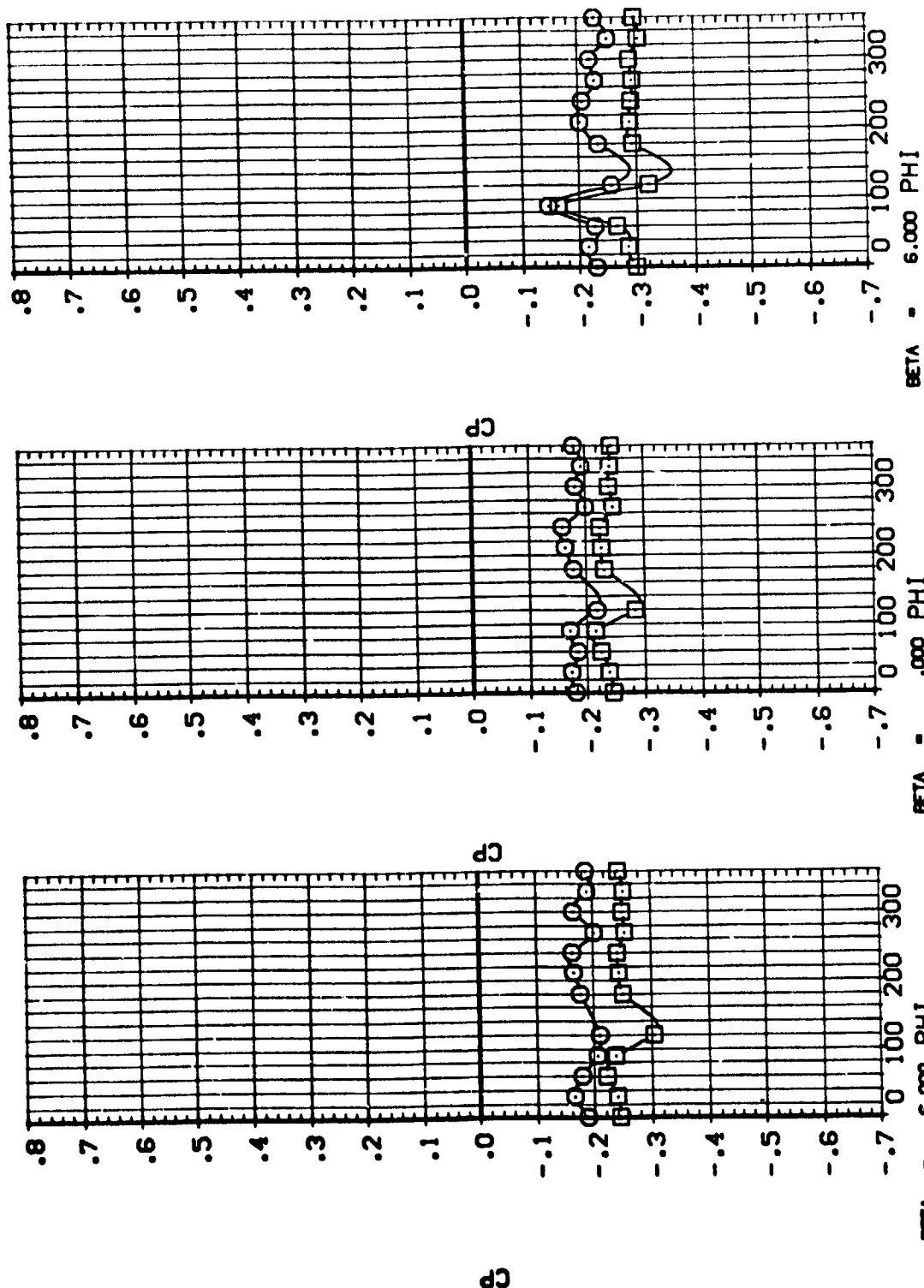


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .406

DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
 (RUF002) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
 (RUF004)

ALPHA: .000 .000  
 POWER: .000 1.000  
 CPR: 36.200  
 SRMPR: 2.330

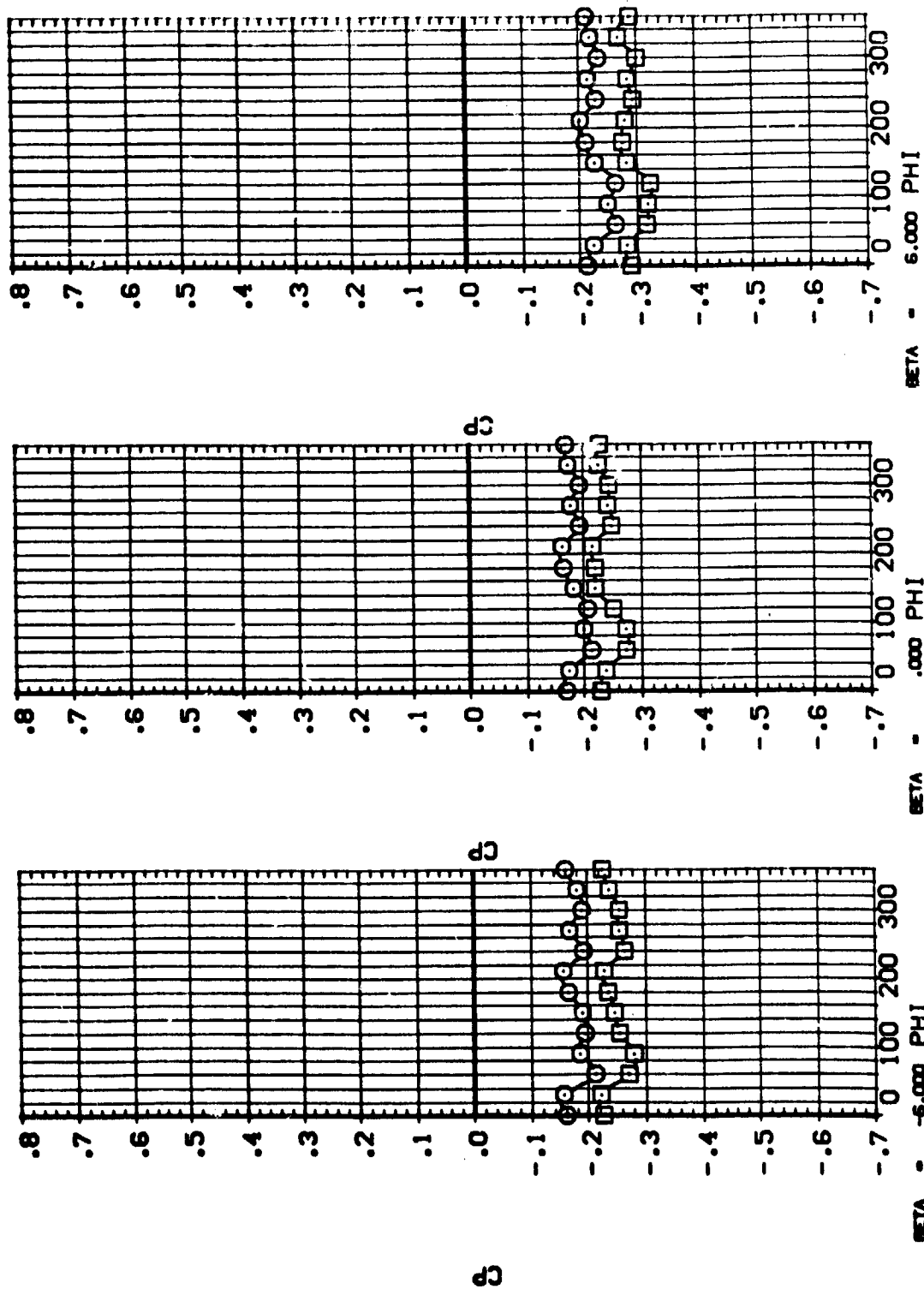


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .580



DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA POWER DPR SPPR  
(RUF002) CAL T14-053 IAS 02 + 11 + S1 LOWER RH MPS NOZ: .000 1.000 36.200 2.300  
(RUF004) CAL T14-053 IAS 02 + 11 + S1 LOWER RH MPS NOZ: .000 1.000 36.200 2.300



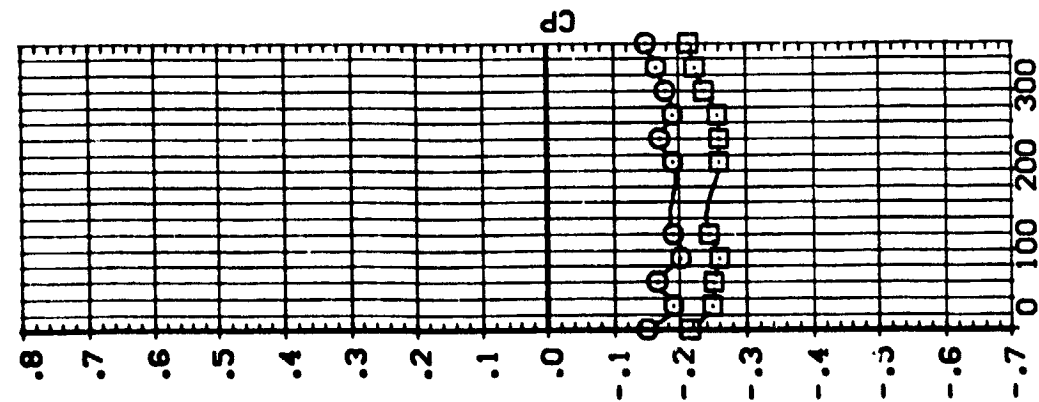
PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .754

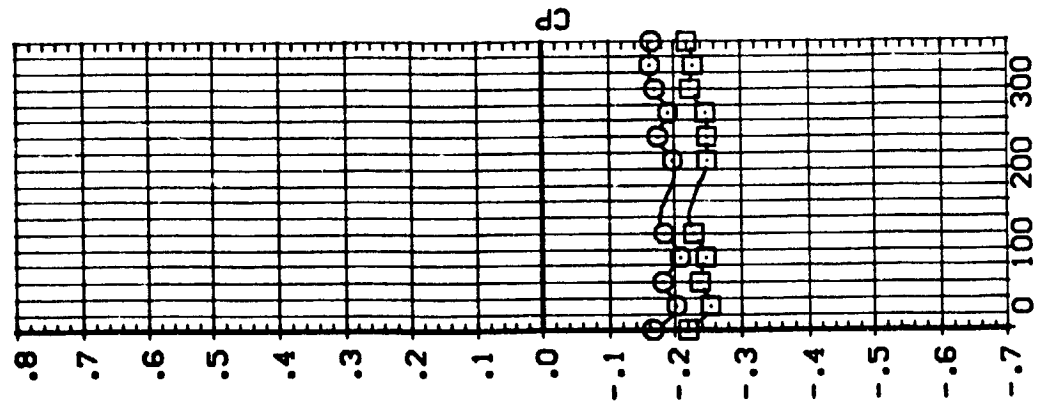
DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RUF002) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
(RUF004) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.

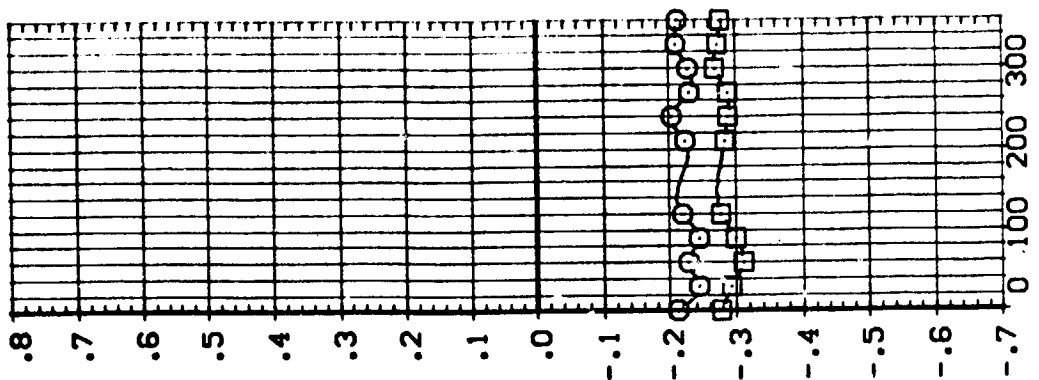
ALPHA POWER DPR SWPR  
.000 .000  
.000 1.000 36.200 2.330



BETA = -6.000 PHI



BETA = .000 PHI



BETA = 6.000 PHI

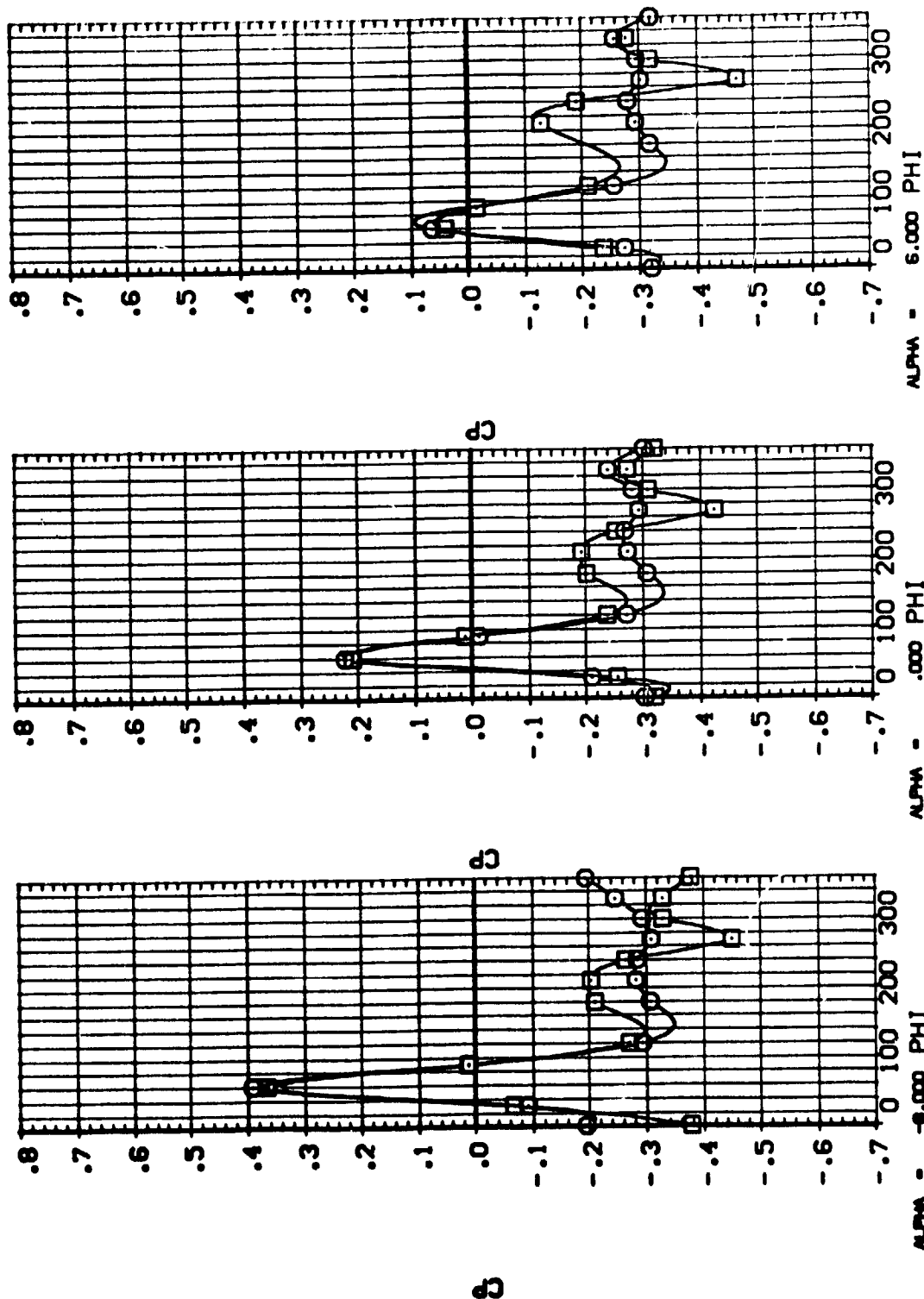
PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .900 X/DE = .928



DATA SET SYMBOL: CAL T14-053 IAS 02 + 11 + S1 LOWER RH MPS NOZ:  
(RUF005) □ CAL T14-053 IAS 02 + 11 + S1 LOWER RH MPS NOZ:  
(RUF007)

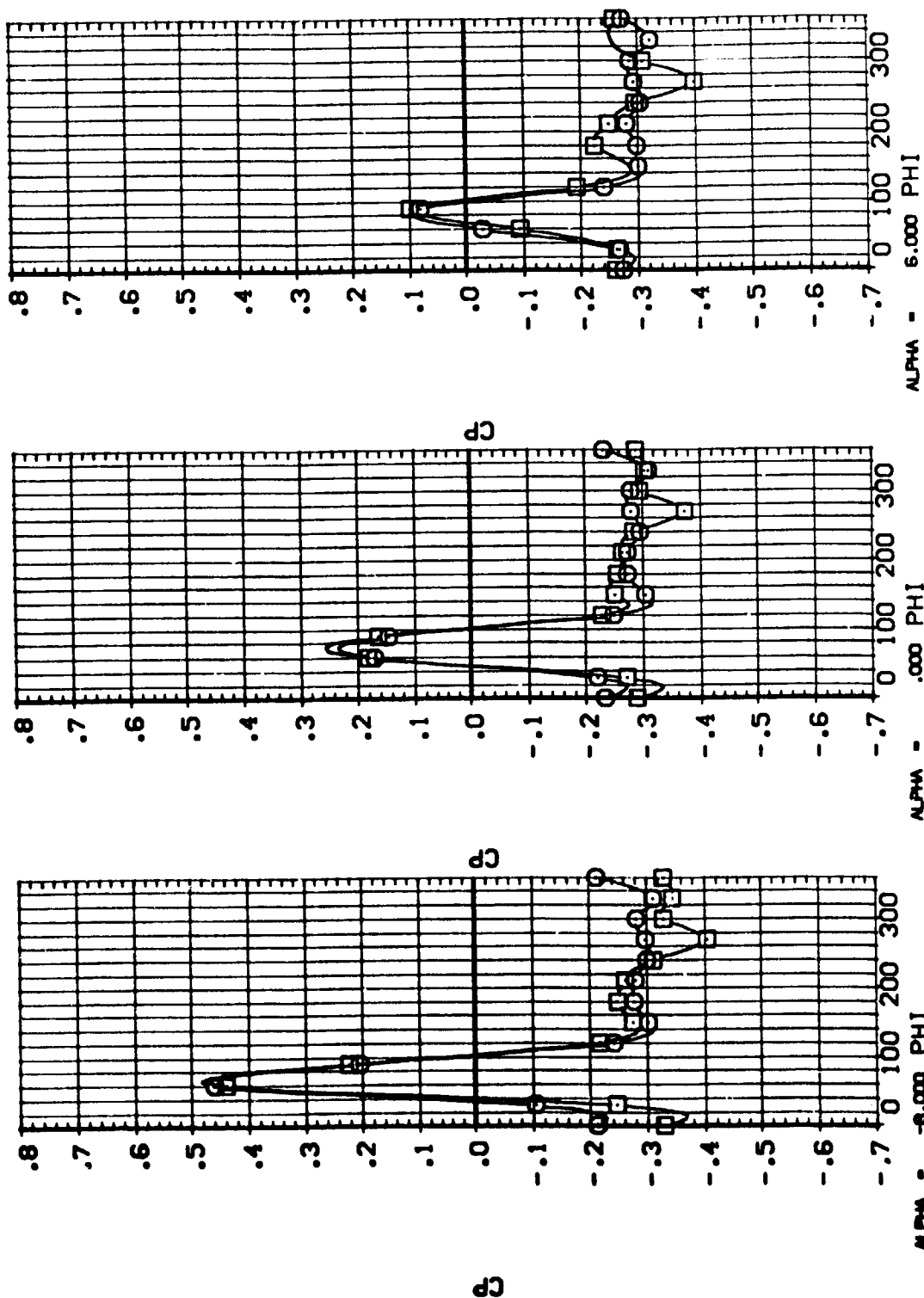
BETA .000 .000 .000  
POWER 1.000 1.000 1.000  
DPR 28.310 28.310 28.310  
SNPPR 2.000 2.000 2.000



PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: (RUF005) (RUF007) CONFIGURATION DESCRIPTION: CAL T14-053 [A35 02 + T1 + S1] LOWER RH MPS NOZ. : BETA: .000 POWER: .000 1.000 SRPR: 28.310 2.020



PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .232

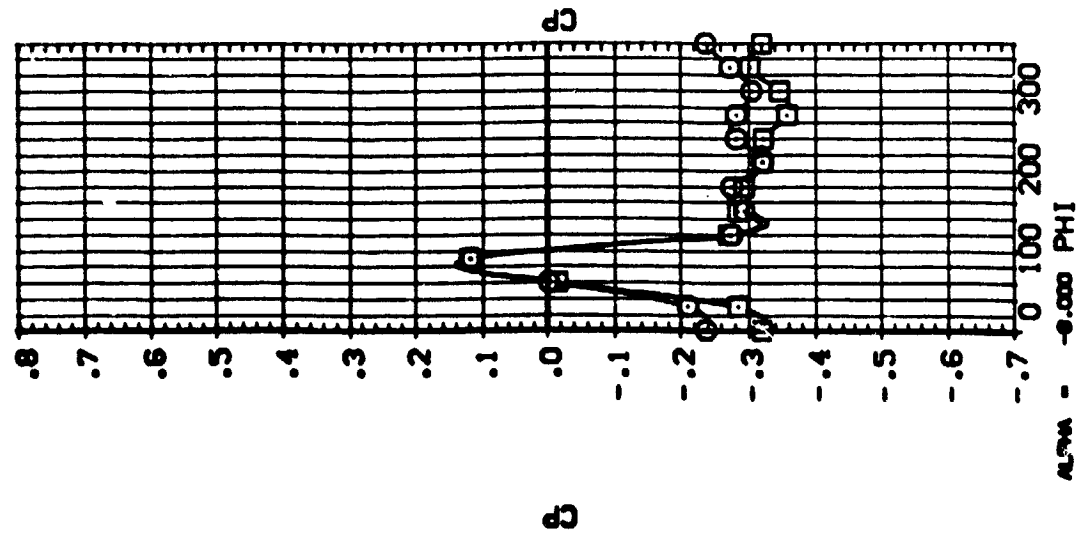


DATA SET SYMBOL CONFIGURATION DESCRIPTION:

(RUP005) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.  
(RUP007) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.

BETA POWER GPR SWPR

.000 .000 28.310 2.020

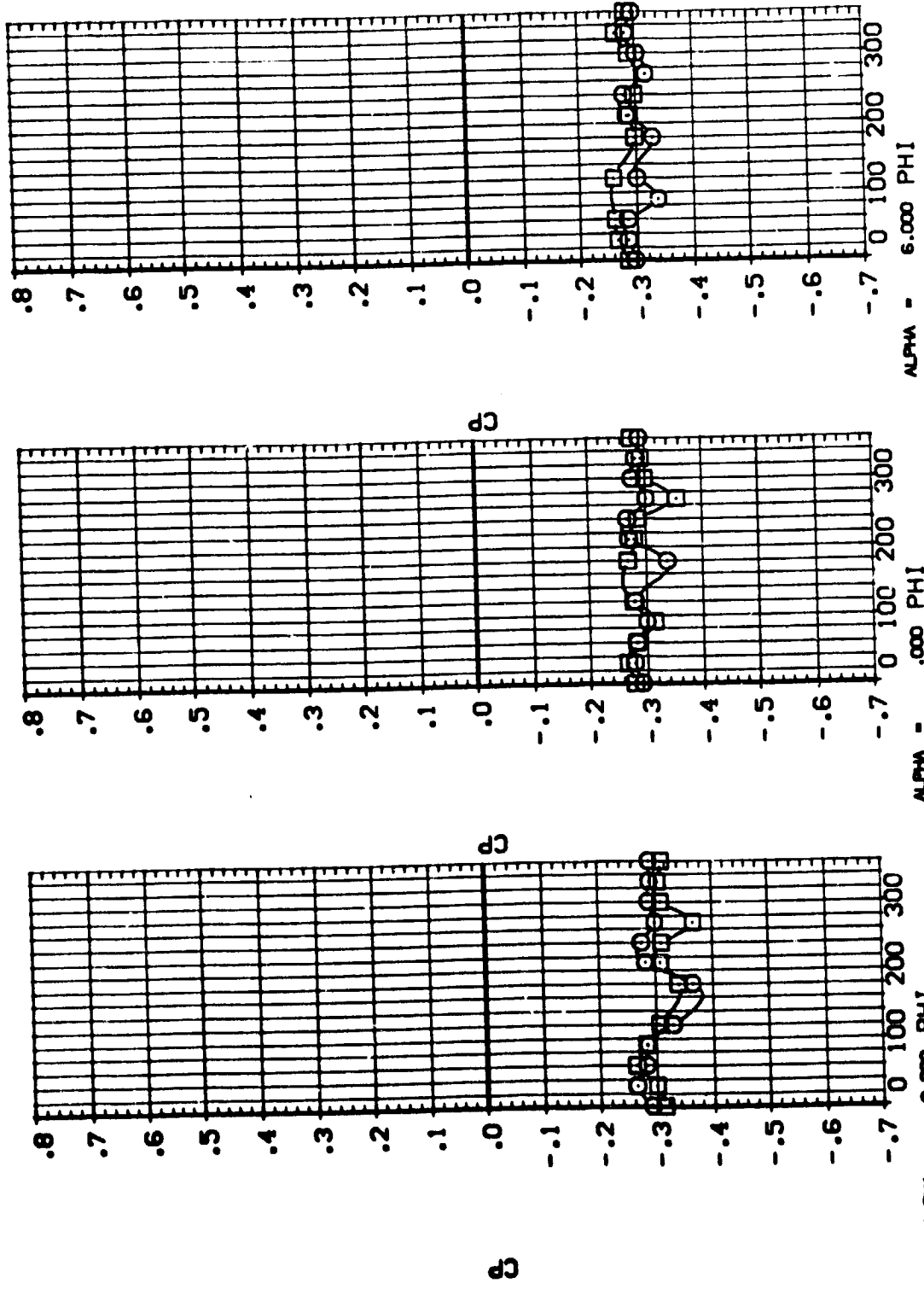


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: **Q** CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.  
 (RUF005) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.  
 (RUF007)

BETA: .000 POWER: .000 SPPR: 2.020  
 QPR: 28.310



PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .580



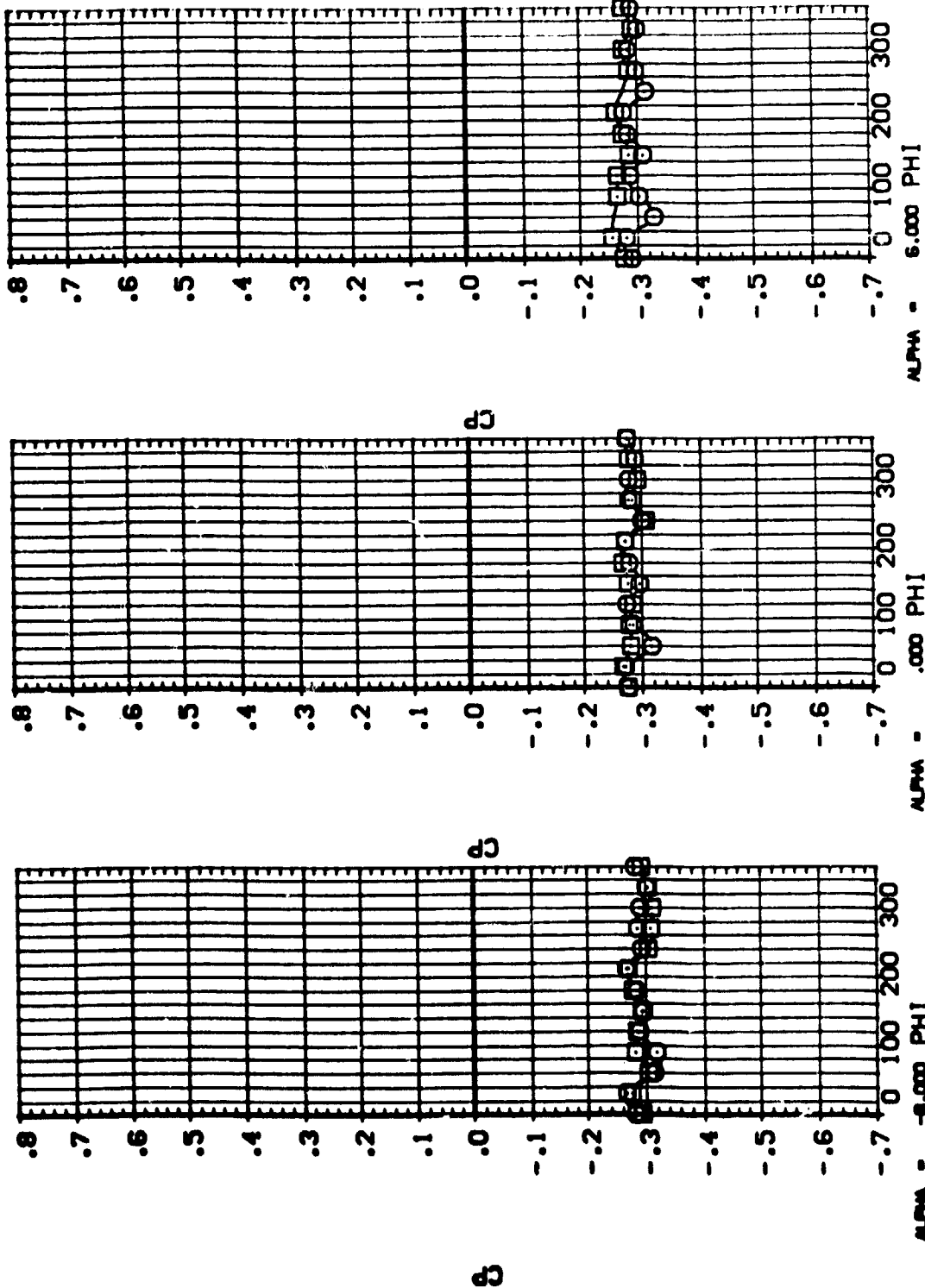


DATA SET SYMBOL: CAL 114-053  
(ALF005)  
(ALF007)

CONFIGURATION DESCRIPTION:  
CAL 114-053 IAS 02 : T1 : S1  
CAL 114-053 IAS 02 : T1 : S1

LOWER RH MPS NOZ:  
LOWER RH MPS NOZ:

BETA: .000  
POWER: .000  
GPR: 29.310  
SWPR: 2.000

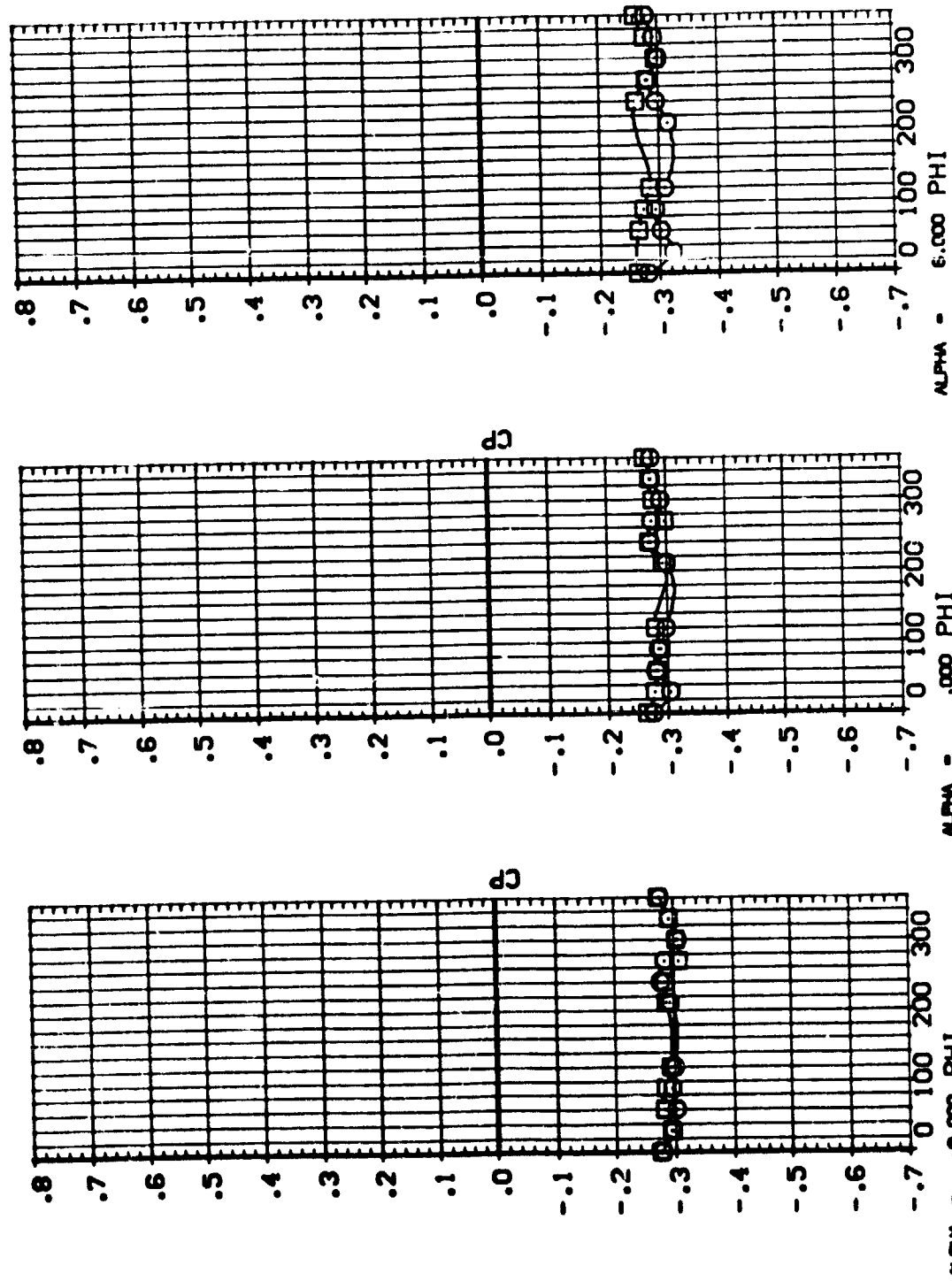


PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .754

DATA SET SYMBOL: CAL 714-053 [A35 02 ÷ T1 ÷ S1] LOWER RH MPS NOZ:  
 (RUF003) (RUF007)

BETA .000 POWER .000 SPR  
 .000 1.000 28.310 2.000



PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

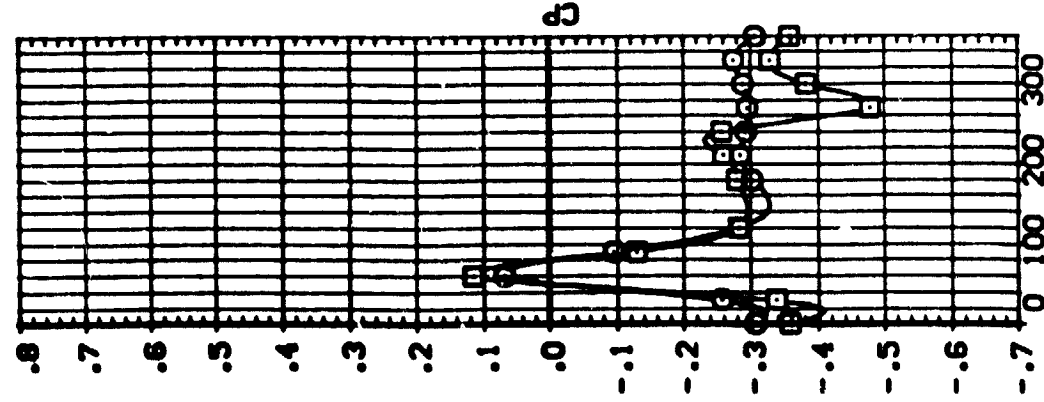
MACH = 1.200 X/DE = .928



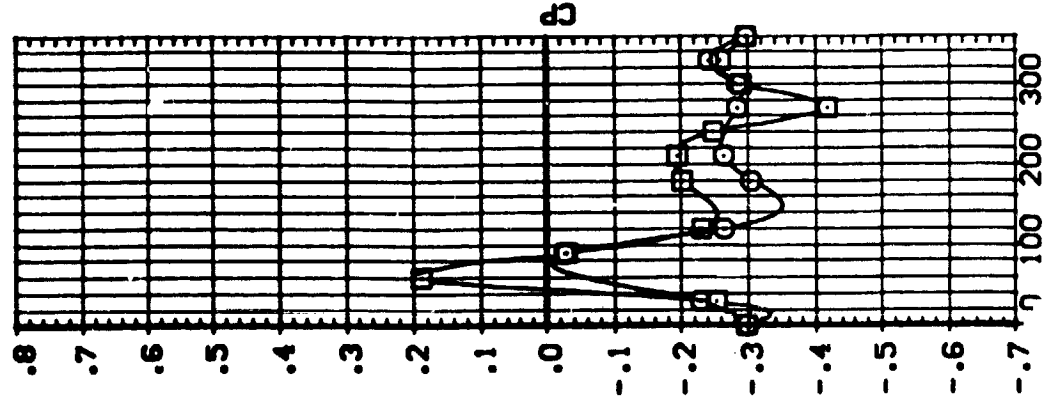
DATA SET SYMBOL CONFIGURATION DESCRIPTION

[RUF08] CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ.  
[RUF08] CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ.

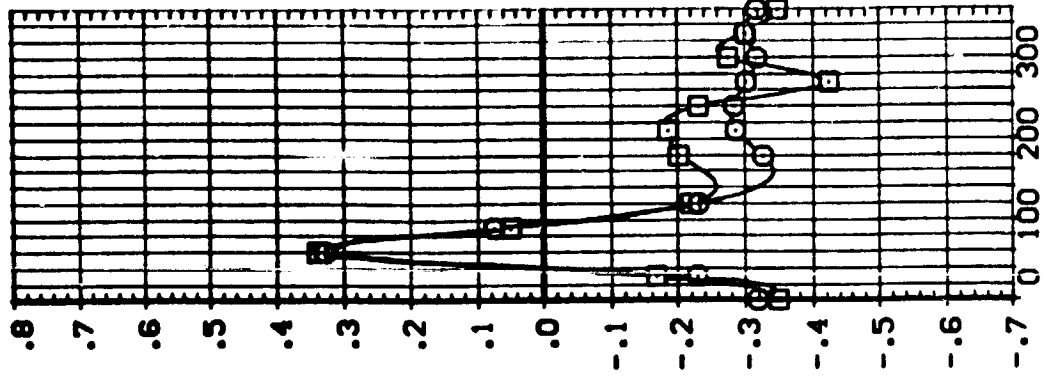
ALPHA POWER CDR SPPR  
.000 .000 28.310 2.020  
.000 1.000



BETA = -6.000 PHI



BETA = .000 PHI



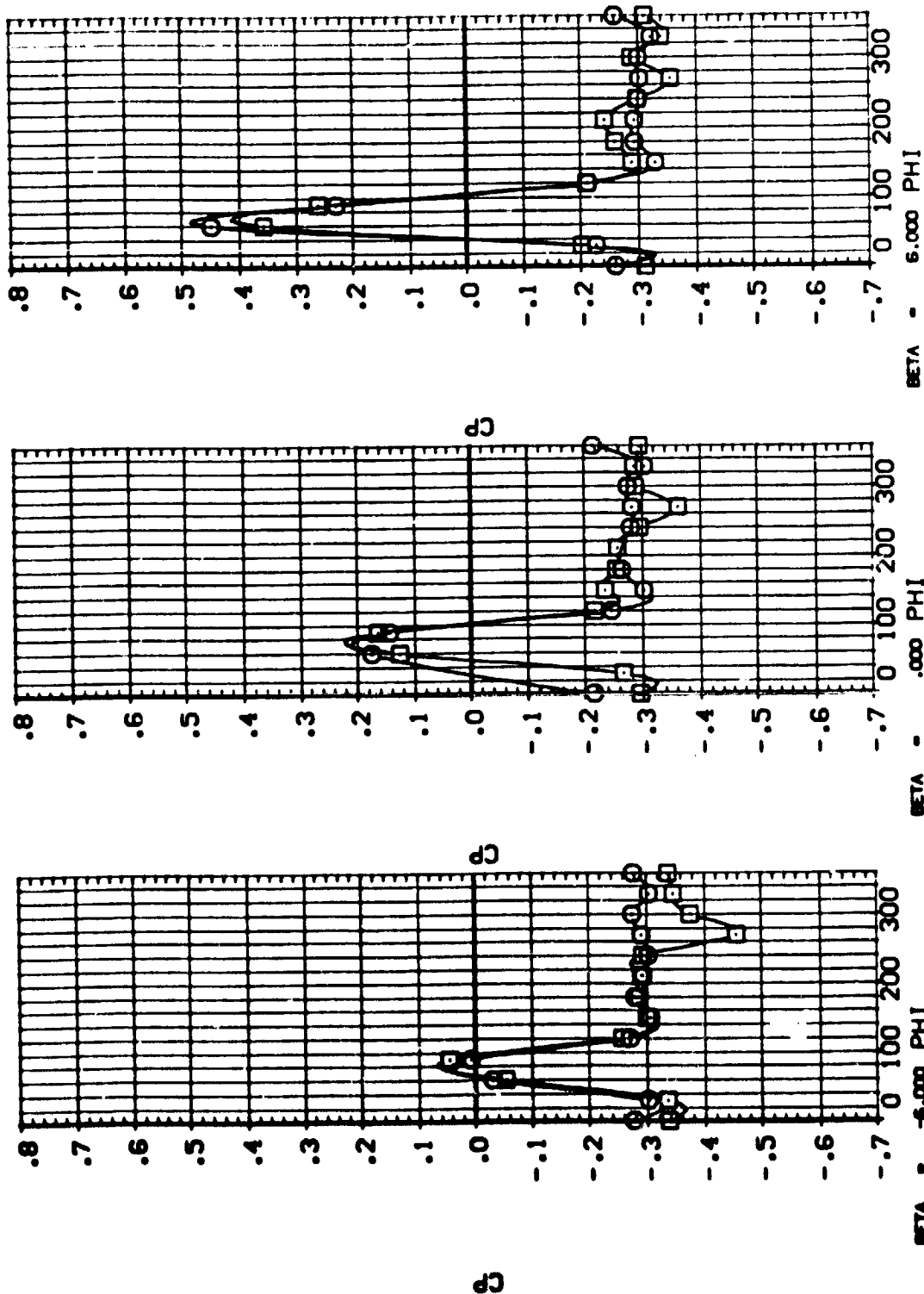
BETA = 6.000 PHI

PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: B  
 CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.

ALPHA .000  
 POWER .000  
 DPR 28.310  
 SPRPR 2.020



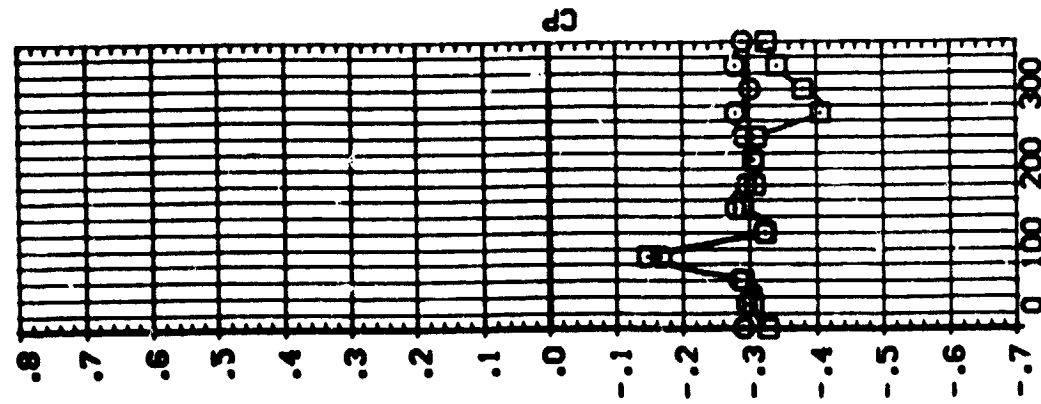
PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .232

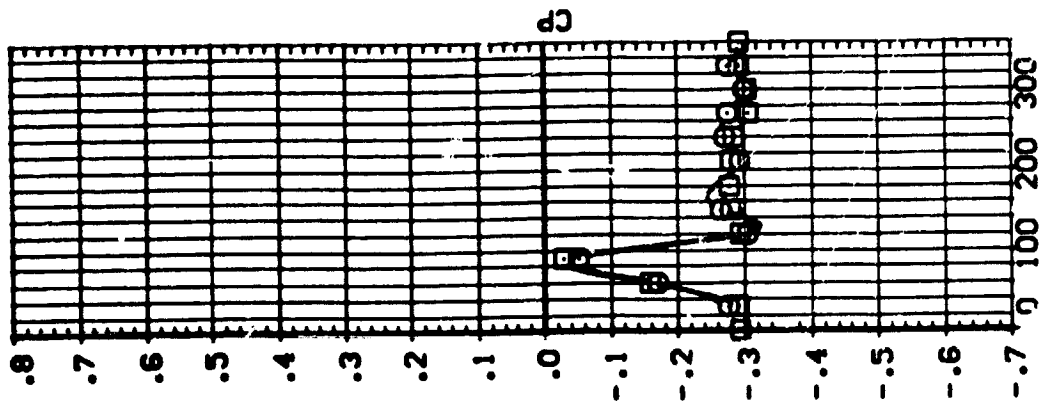


DATA SET SYMBOL: 8  
(RUP008)  
CONFIGURATION DESCRIPTION:  
CAL T14-053 IAS 02 : Y1 : S1  
CAL T14-053 IAS 02 : Y1 : S1

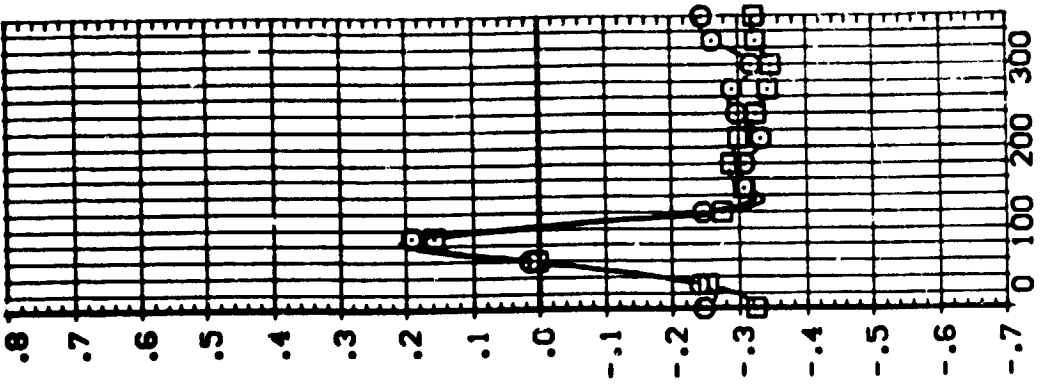
ALPHA POWER CTR SHPR  
.000 .000 28.310 2.000



BETA = -6.000 PHI



BETA = .000 PHI



BETA = 6.000 PHI

# PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: (RUF008) □

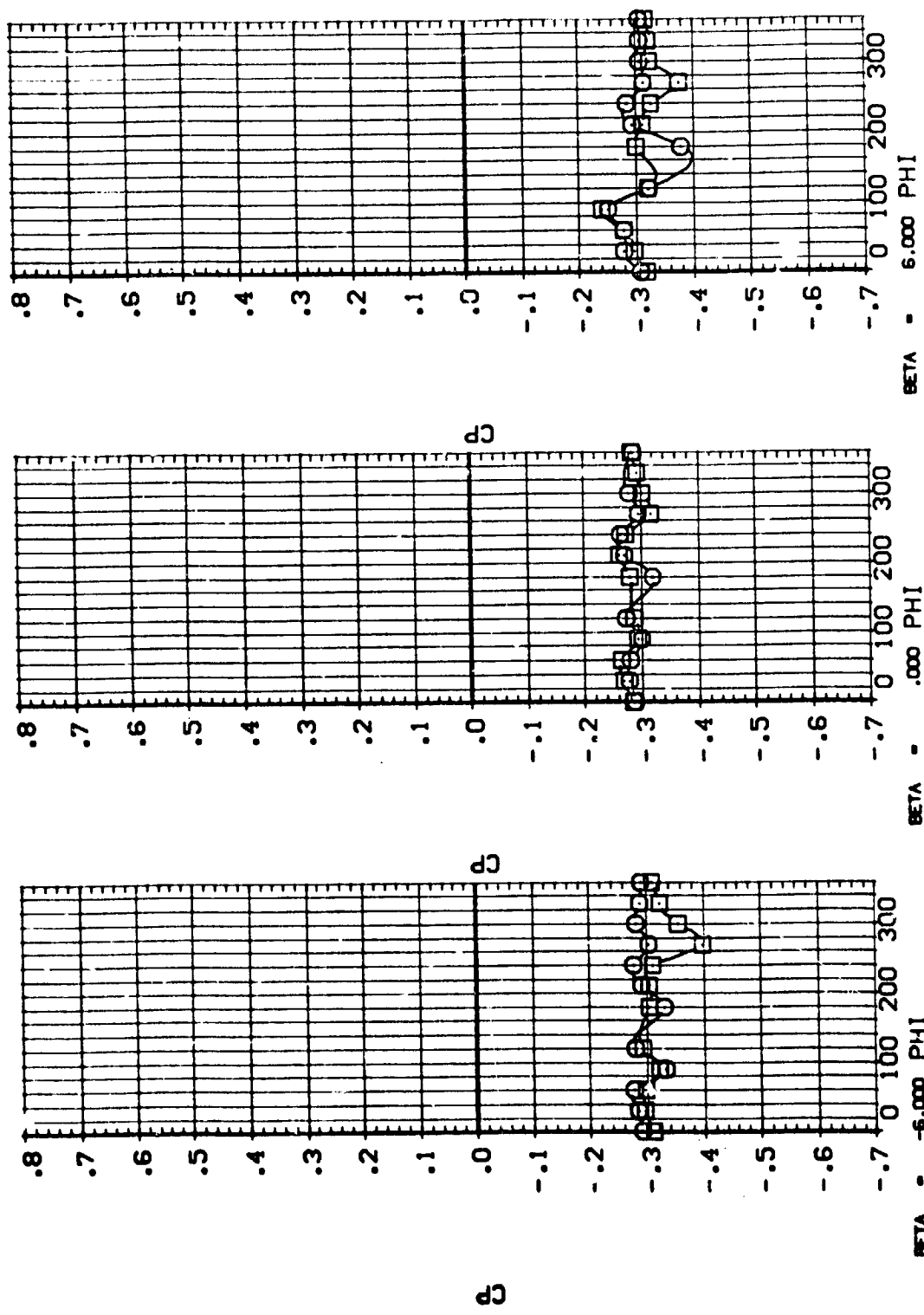
CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.

ALPHA: .000

POWER: 1.000

OPR: 28.310

SRMPR: 2.020



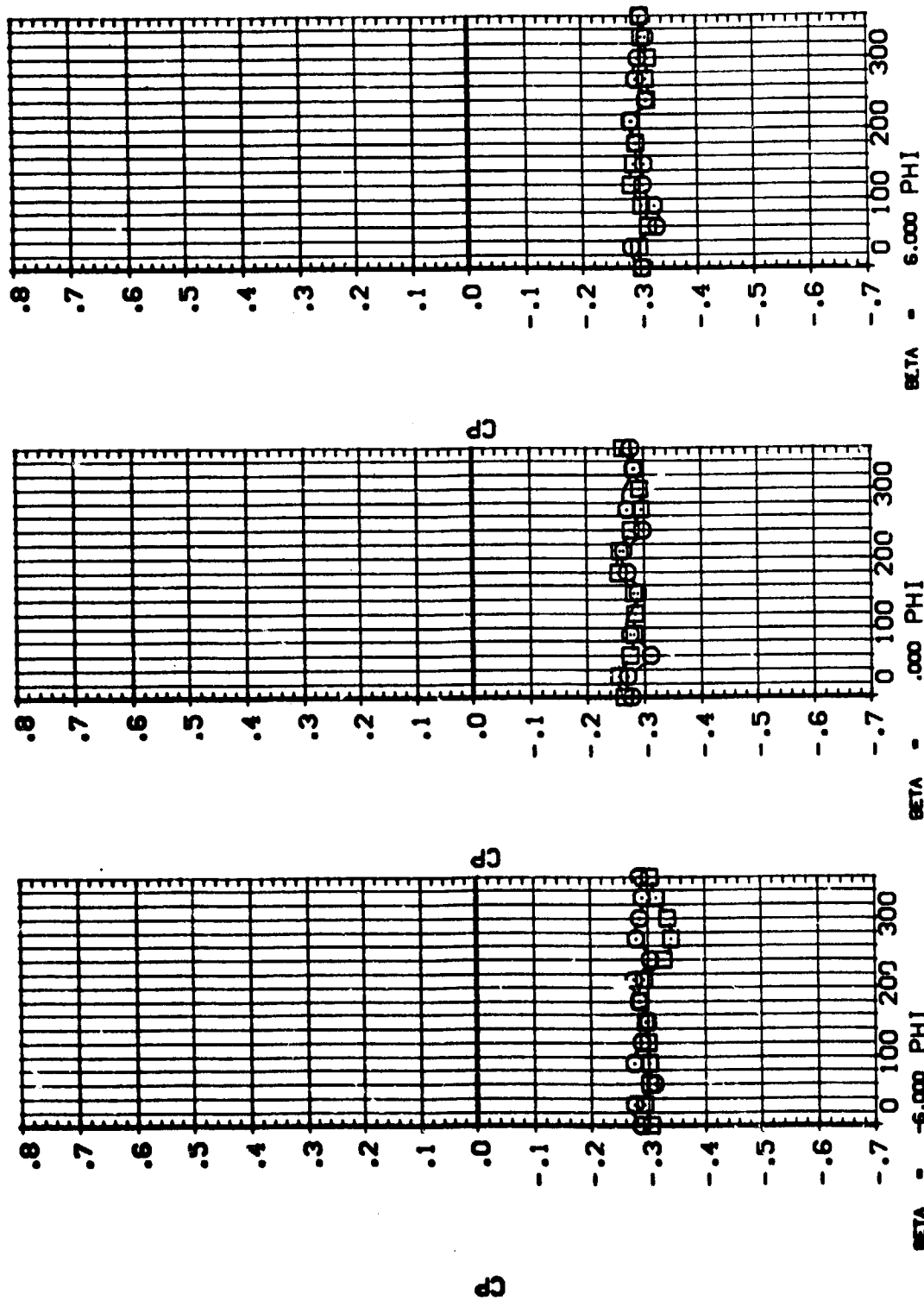
PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .580



DATA SET SYMBOL    CONFIGURATION DESCRIPTION  
(ALF008)    CAL 114-053 IAS 02 + 11 + S1 LOWER RH MPS NOZ:  
(ALF008)    CAL 114-053 IAS 02 + 11 + S1 LOWER RH MPS NOZ:

ALPHA    POWER    CRR    SEPR  
.000    .000    28.310    2.020  
.000    1.000



PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = .200    X/DE = .754

DATA SET SYMBOL: (RUF008) (RUF008) (RUF008)

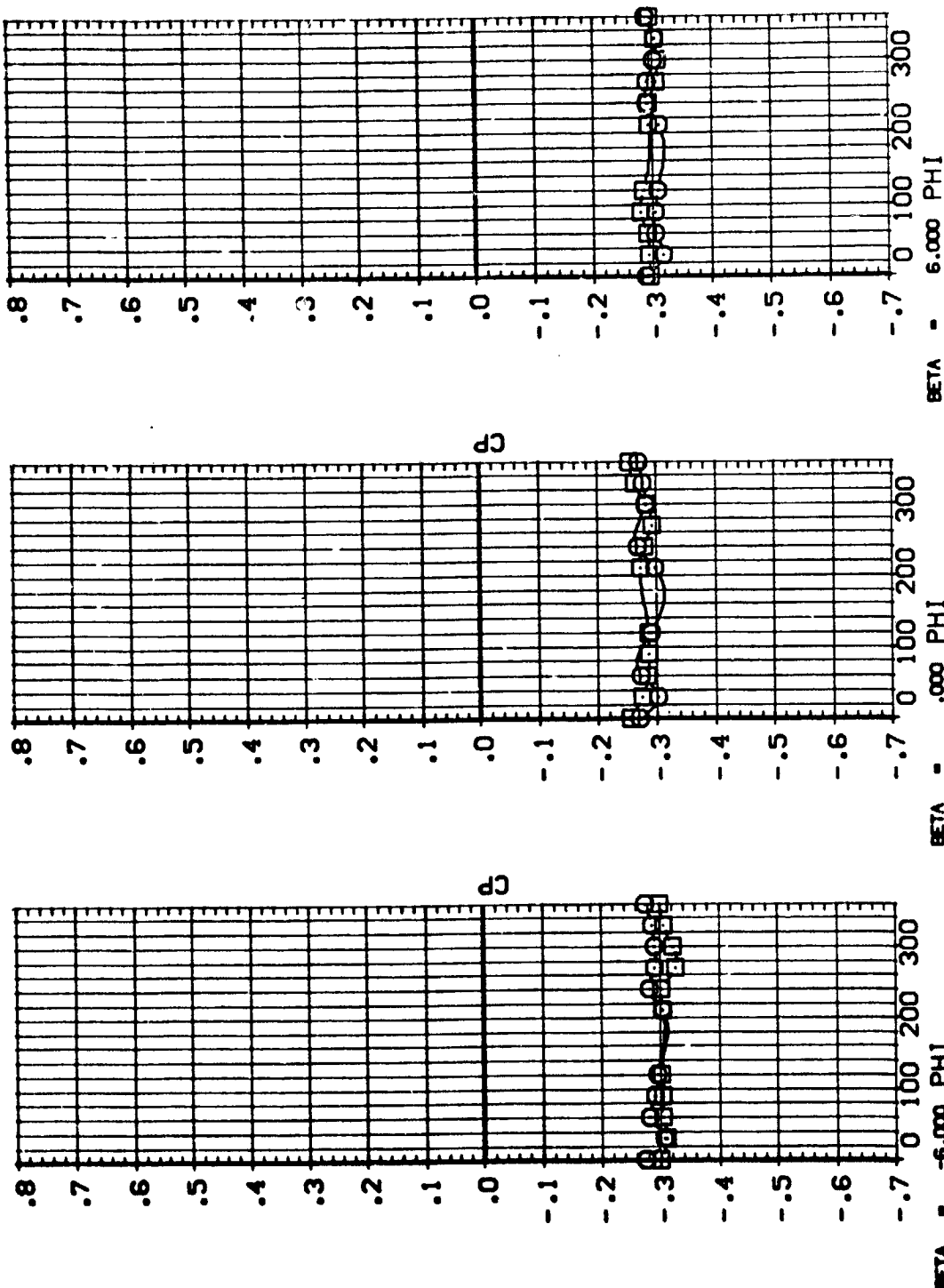
CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.

ALPHA: .000 .000 .000

POWER: 1.000 1.000 1.000

OPR: 28.310 28.310 28.310

SNRPR: 2.020 2.020 2.020




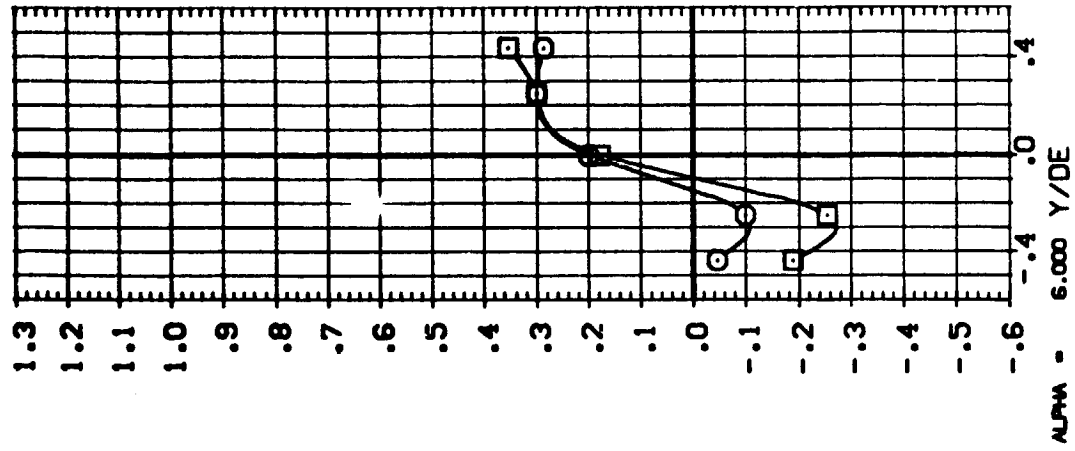
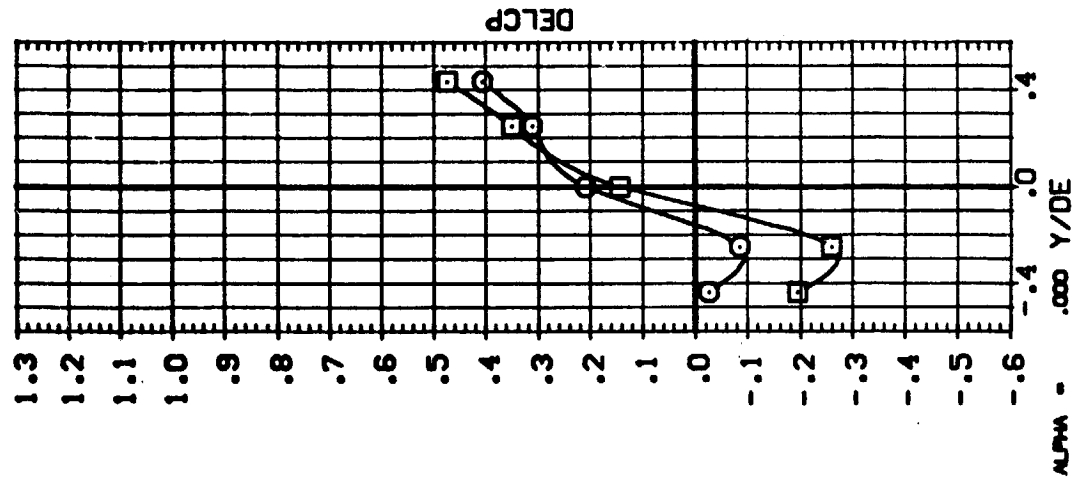
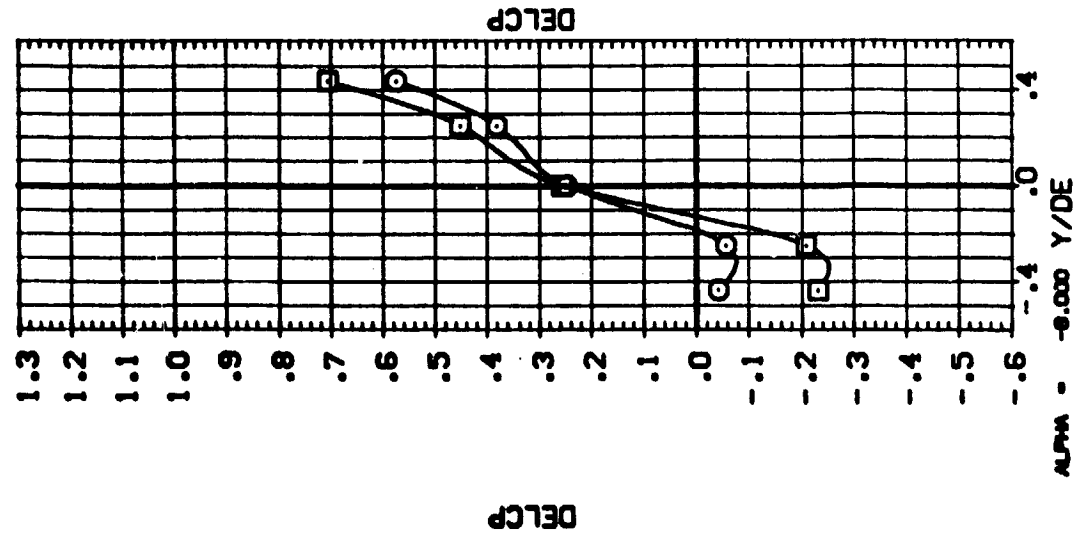
PLUME EFFECT ON LOWER RH MPS NOZZLE PRESSURE DISTRIBUTION

MACH = 1.200 X/DE = .928






DATA SET SYMBOL: (NFA01) (NFA03)  CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
BETA: .000 .000 .000  
POWER: .000 1.000 36.200  
OPR: OPR  
SWPR: 2.300

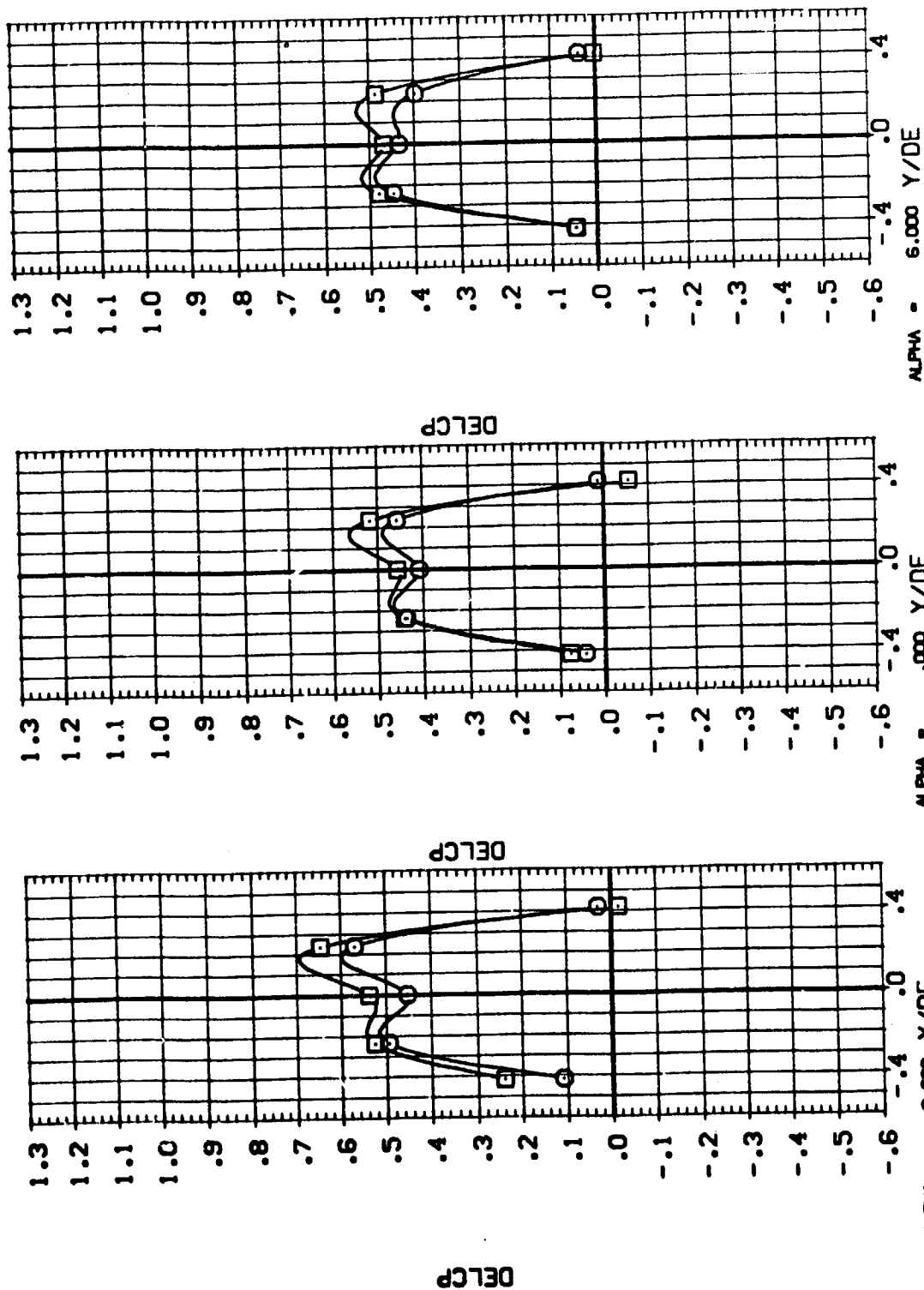


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: (NUFA01) (NUFA03)  CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE / CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

BETA: .000 .000  
POWER: .000 1.000  
DPR: 36.200  
SNRPR: 2.330

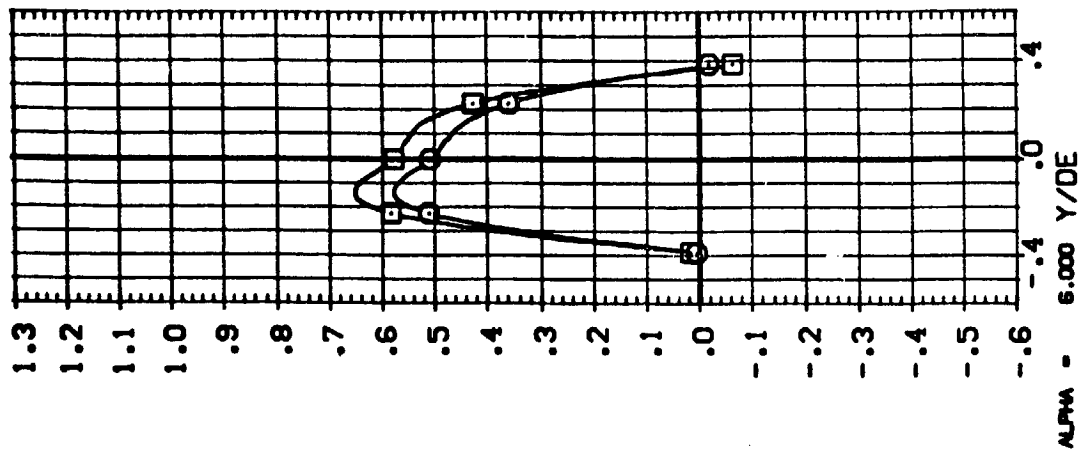
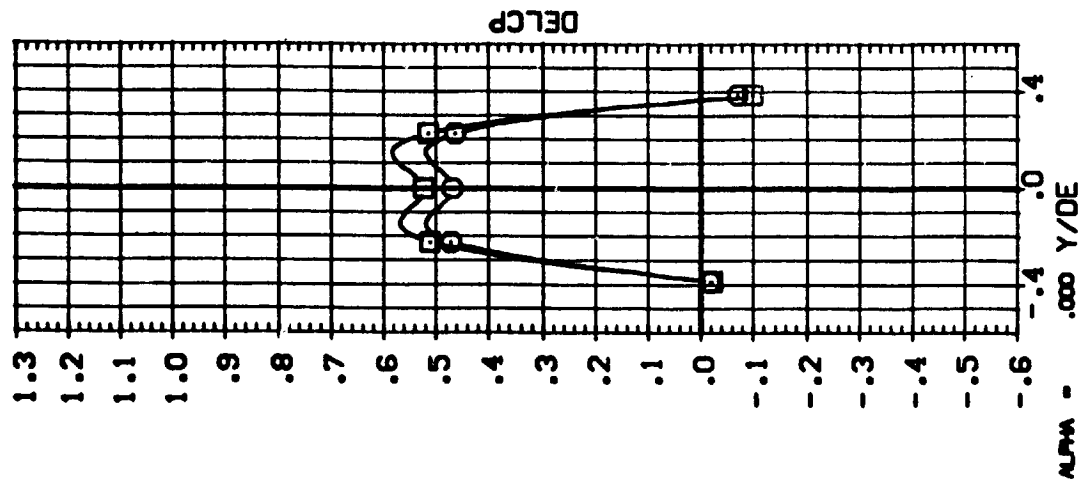
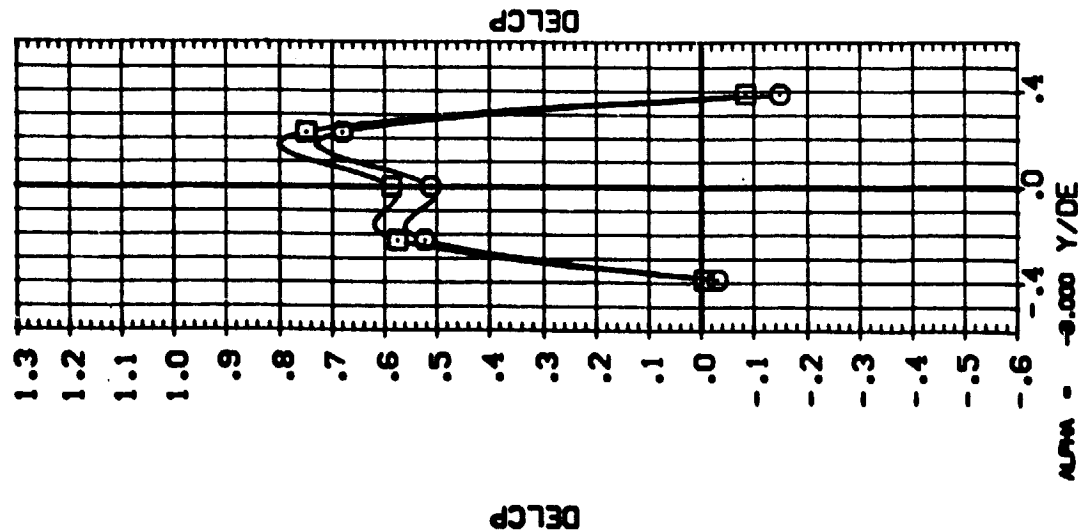


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .232



DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
(NLFAD01) ☐ CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
(NLFAD03) ☐ BETA: .000 POWER: .000 QPR: 36.200 SWPR: 2.300



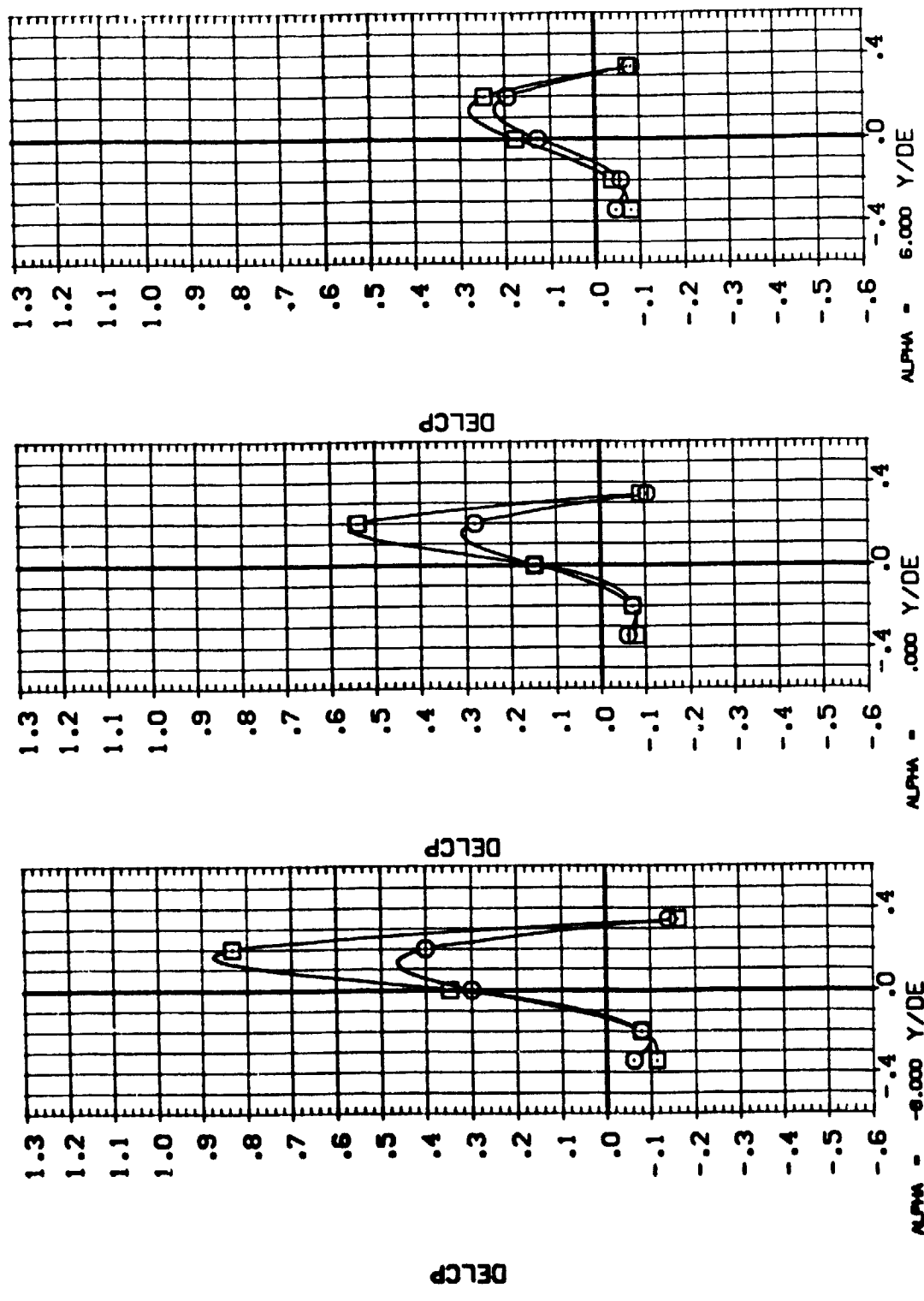
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 ; DE = .406

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    BETA    POWER    QPR    SRRPR

(NLFAD01)    CAL T14-053 IAS 02 : 11 : S1 UPPER MPS NOZZLE    .000    1.000    36.200    2.300

(NLFAD03)    CAL T14-053 IAS 02 : 11 : S1 UPPER MPS NOZZLE



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900    X/DE = .580



DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUPA01) (NUPA03)

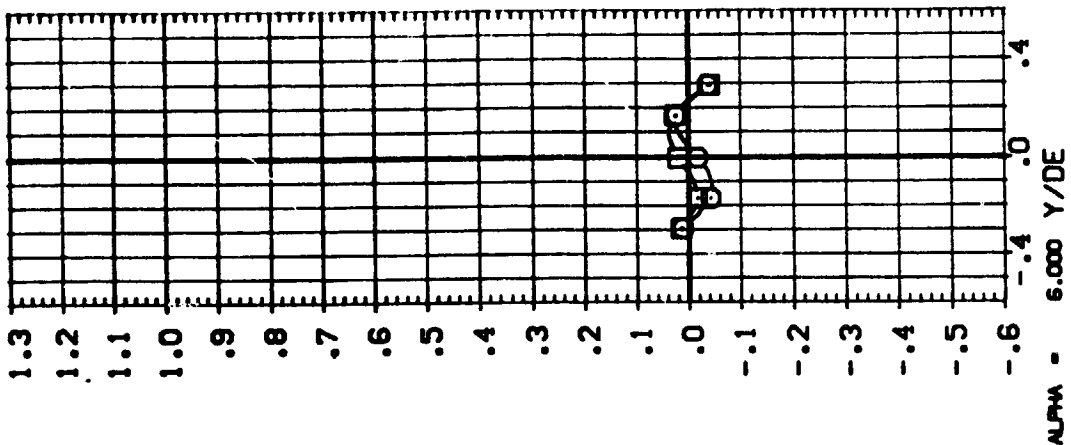
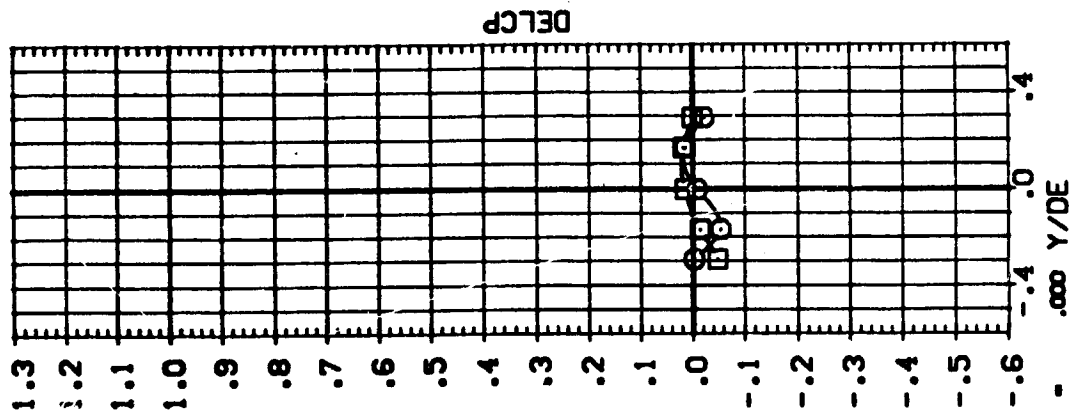
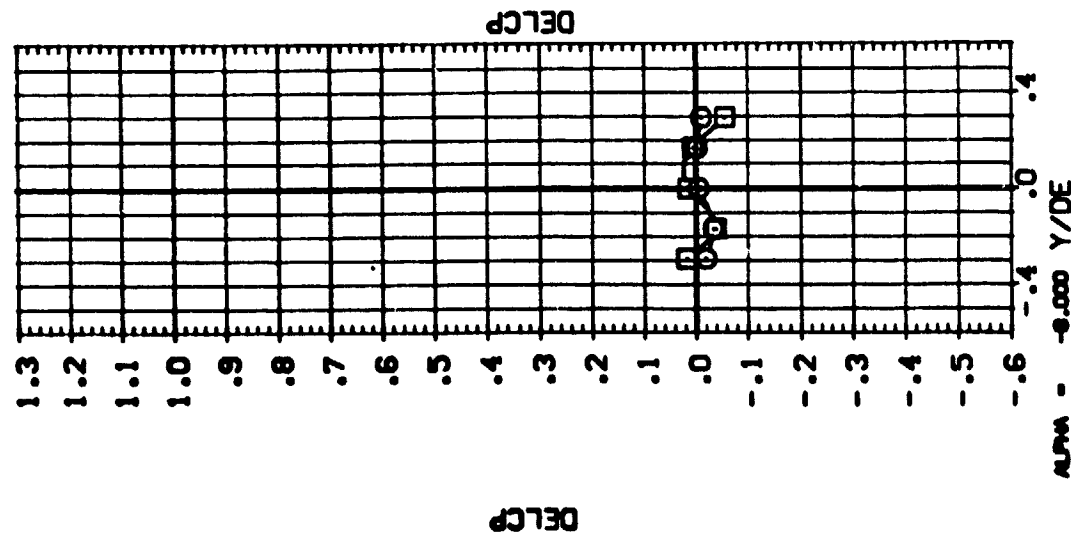
CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

BETA: .000 .000 .000

POWER: 1.000 1.000 1.000

EPR: 36.200 36.200 36.200

SEPR: 2.300 2.300 2.300

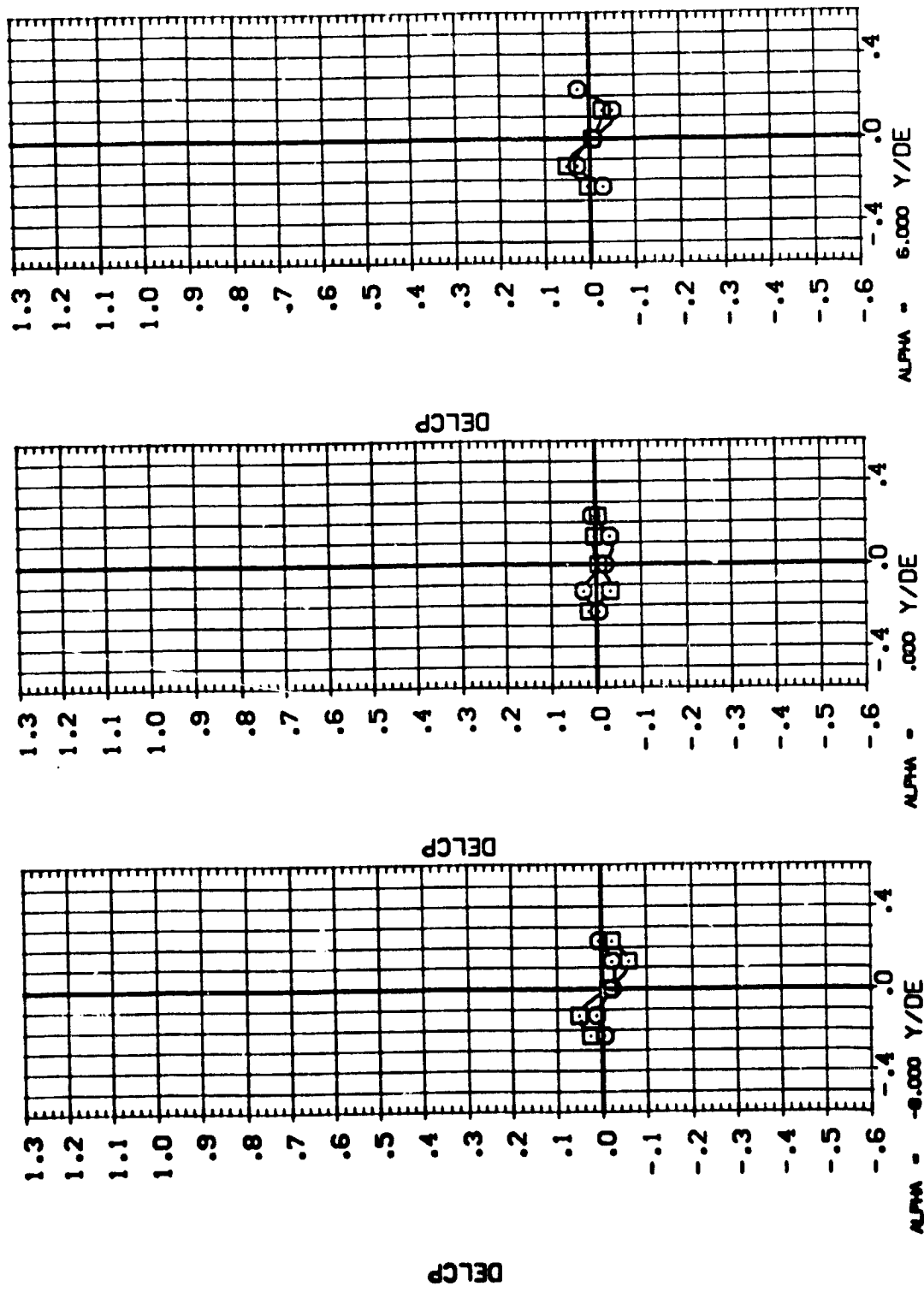


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUFAD1) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUFAD3)

BETA: .000 POWER: .000 SRRPR: 2.300  
 .000 1.000 36.200



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL CONFIGURATION DESCRIPTION

(NUPA02)



CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

ALPHA

POWER

OPR

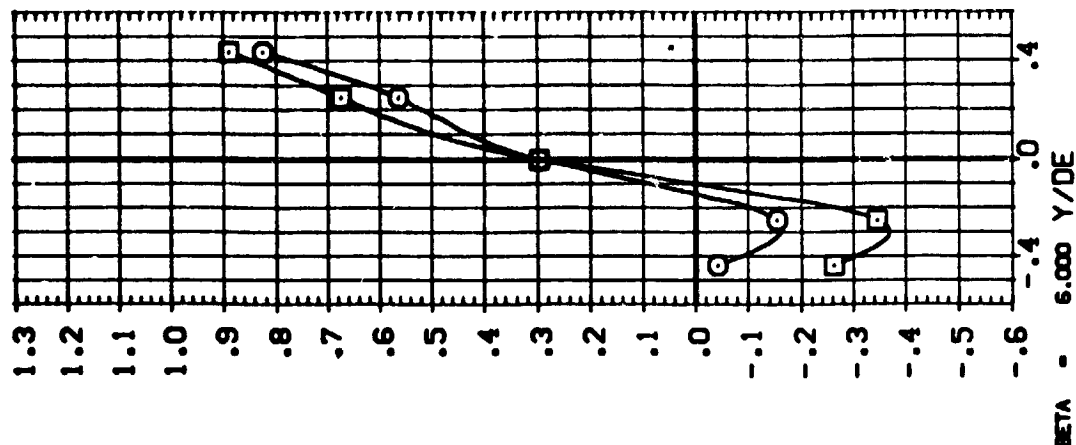
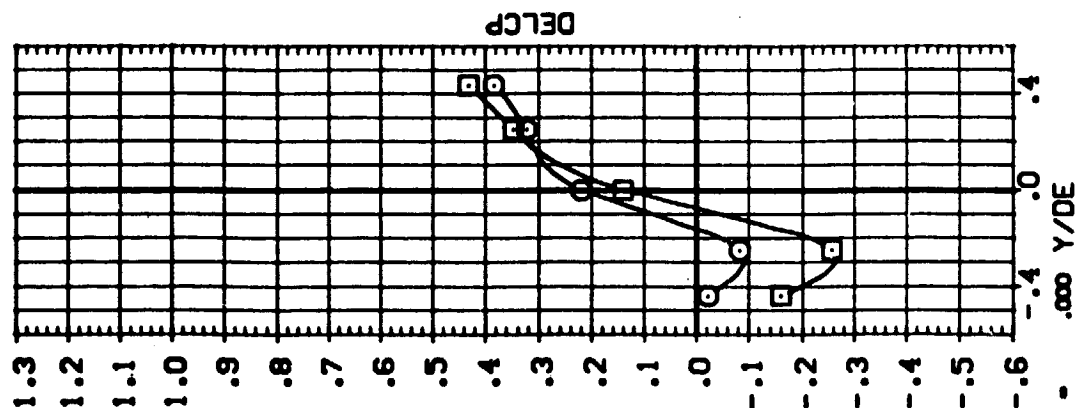
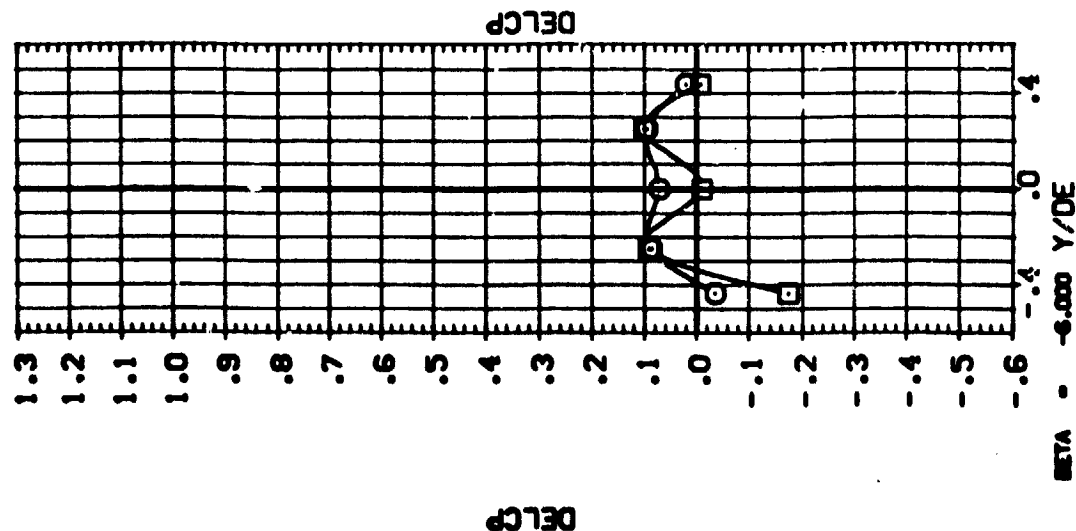
SWPR

2.300

36.200

.000

.000



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: **□** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 (NUFA02) CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 (NUFA01)

SRPR

OPR

POWER

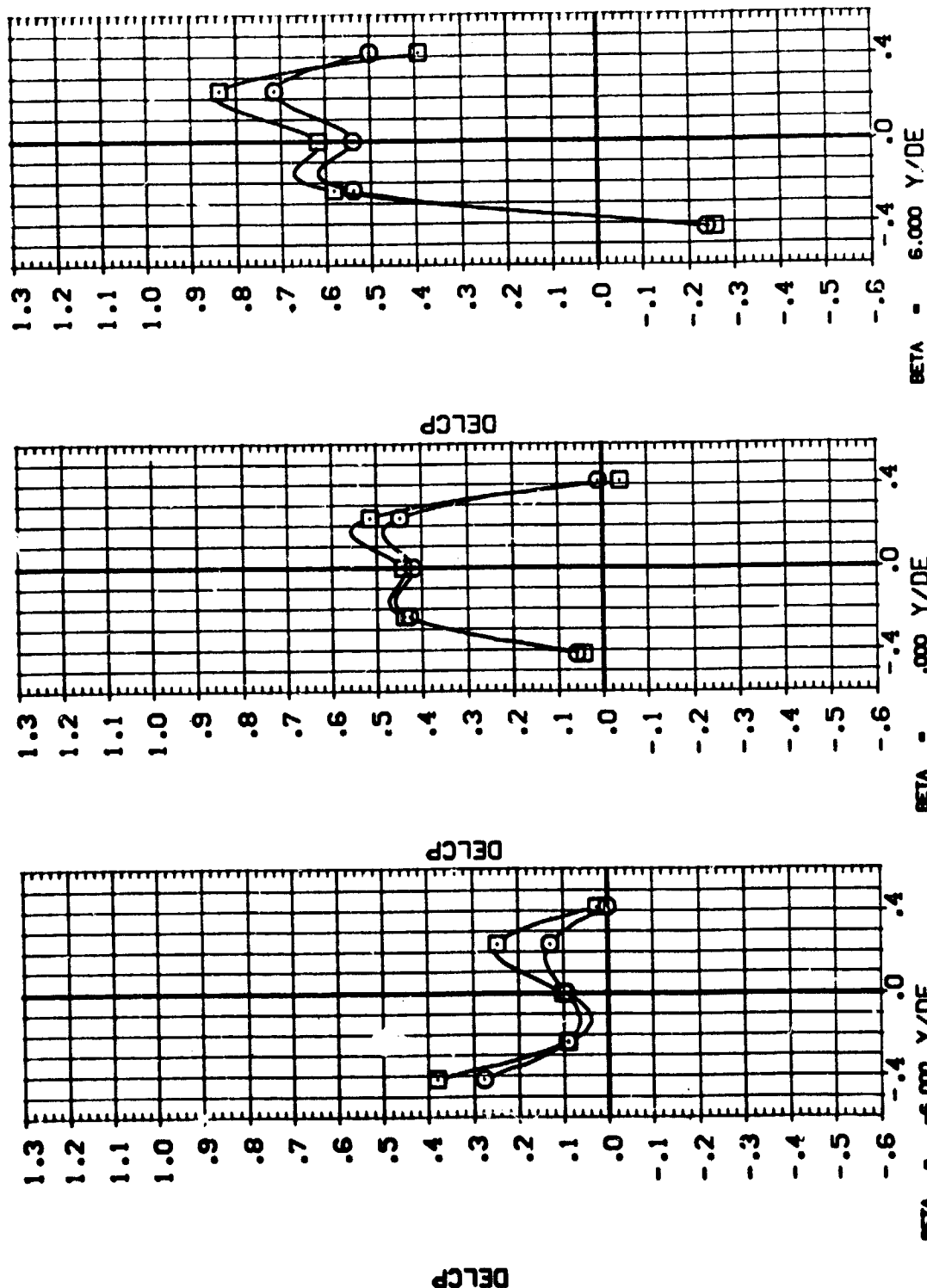
ALPHA

2.300

36.200

.000  
1.000

.000



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

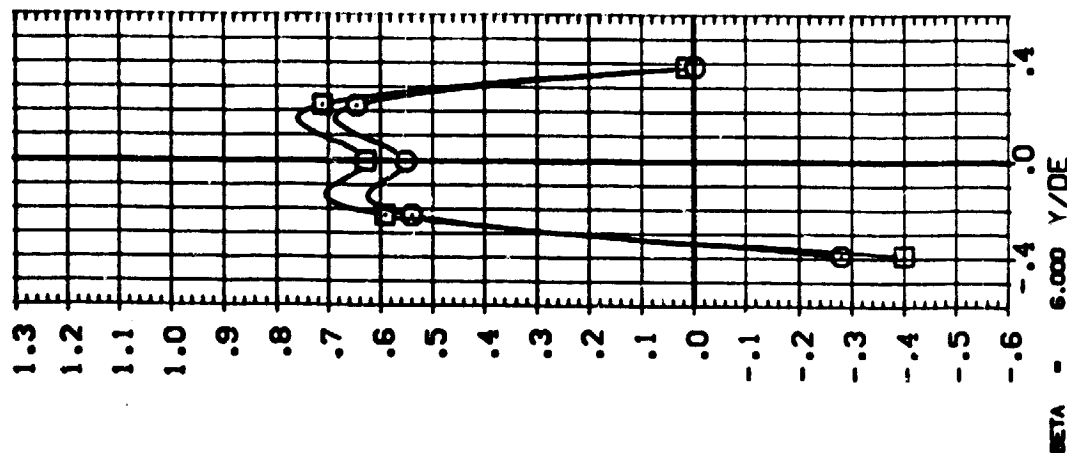
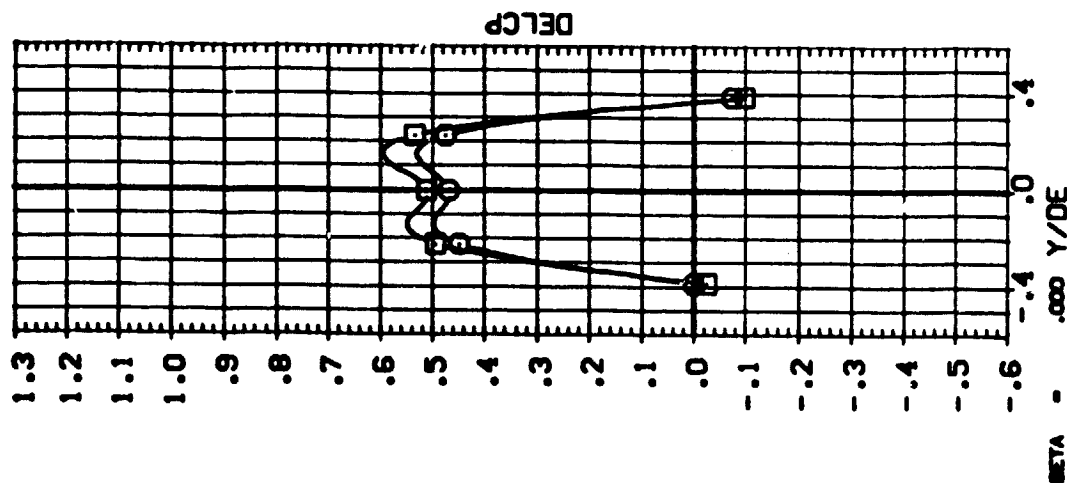
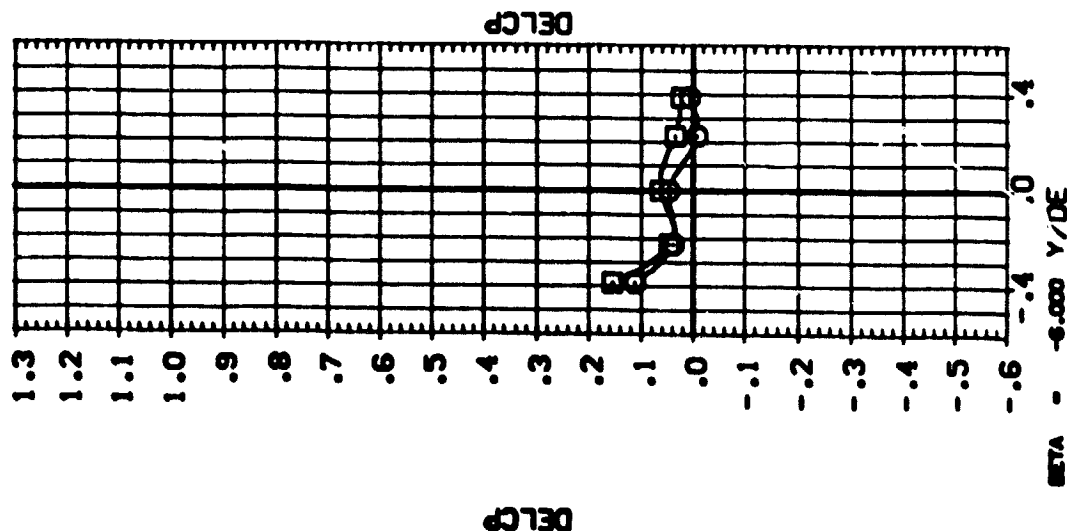
MACH = .900 X/DE = .232





DATA SET SYMBOL:  $\square$  CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NLF/02) (NLF/04)

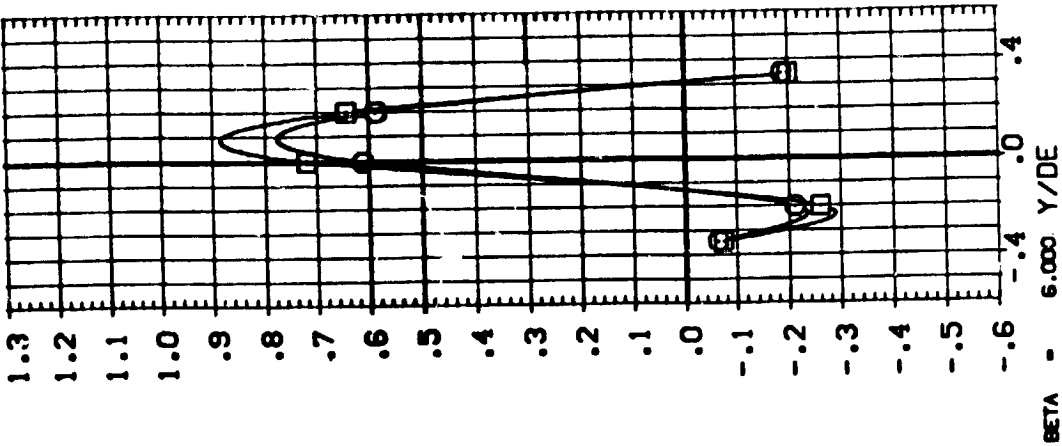
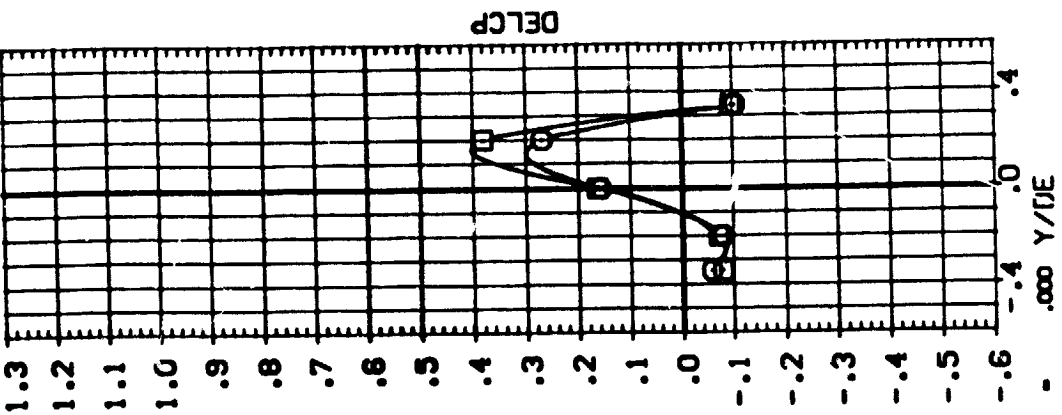
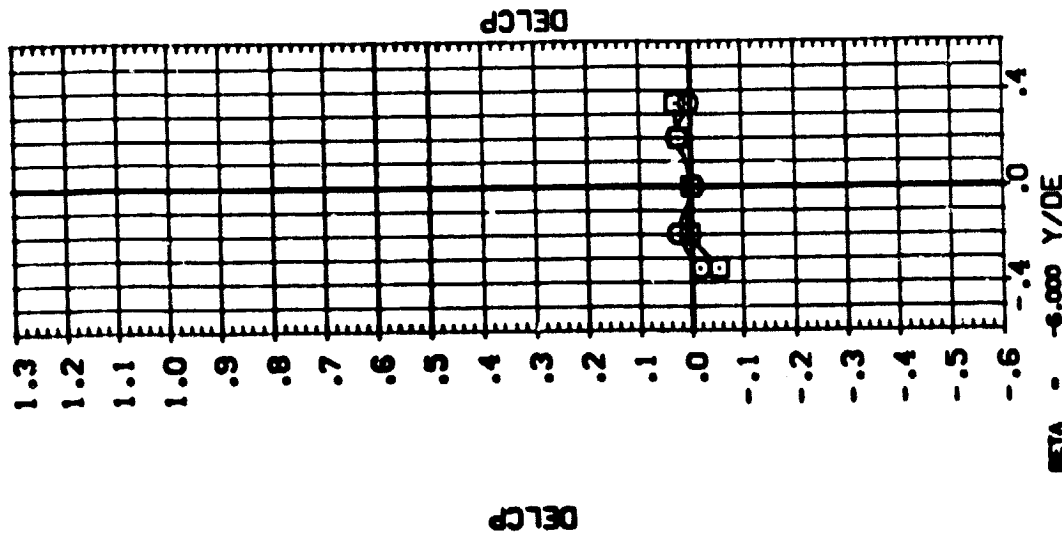
ALPHA: .000 POWER: .000 DFR: 36.200 SFR: 2.330



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUPA02) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUPA01) ALPHA: .000 POWER: .000 DPR: 36.200 SPRR: 2.300



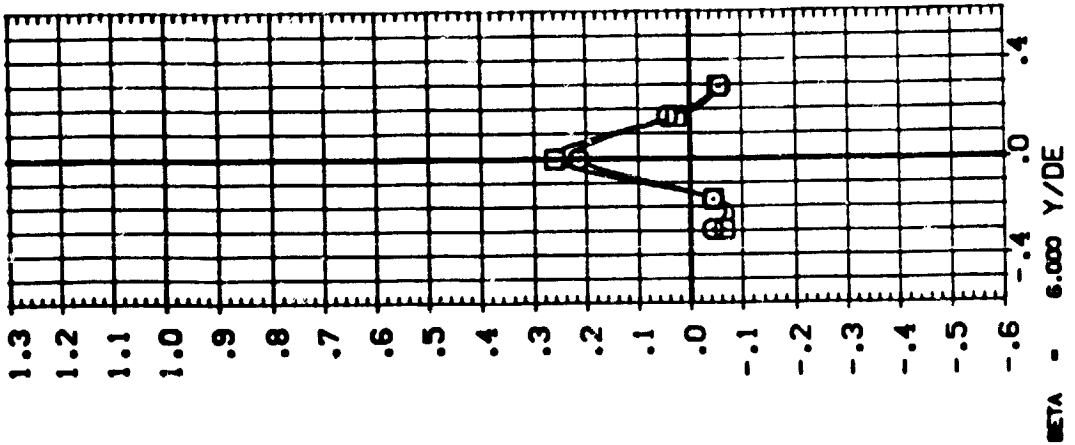
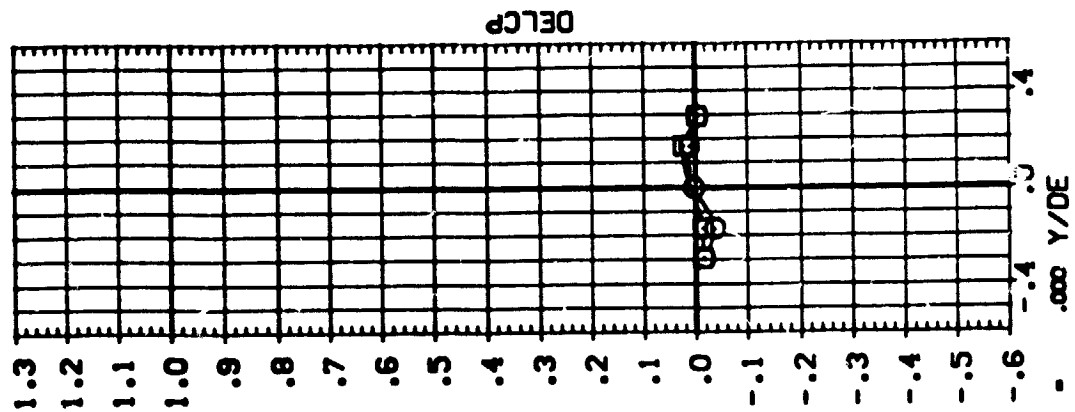
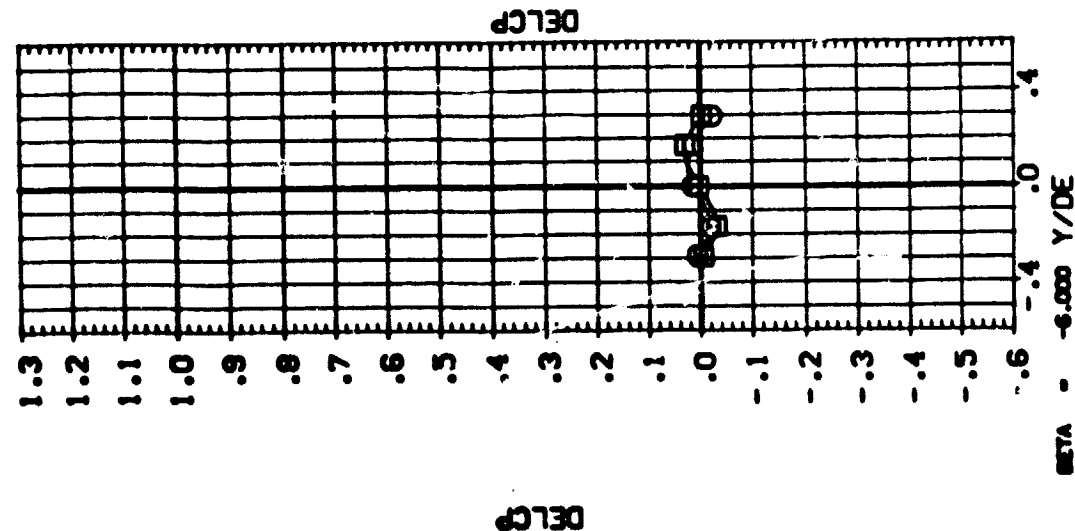
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .580



DATA SET SYMBL. CONFIGURATION DESCRIPTION  
(MUFAD2) 8 CAL T14-053 IAS Q2 : T1 : S1 UPPER MPS NOZZLE  
(MUFAD1) 8 CAL T14-053 IAS Q2 : T1 : S1 UPPER MPS NOZZLE

ALPHA .000 .000  
POWER .000 1.000  
OPR 36.200  
SWPR 2.330



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

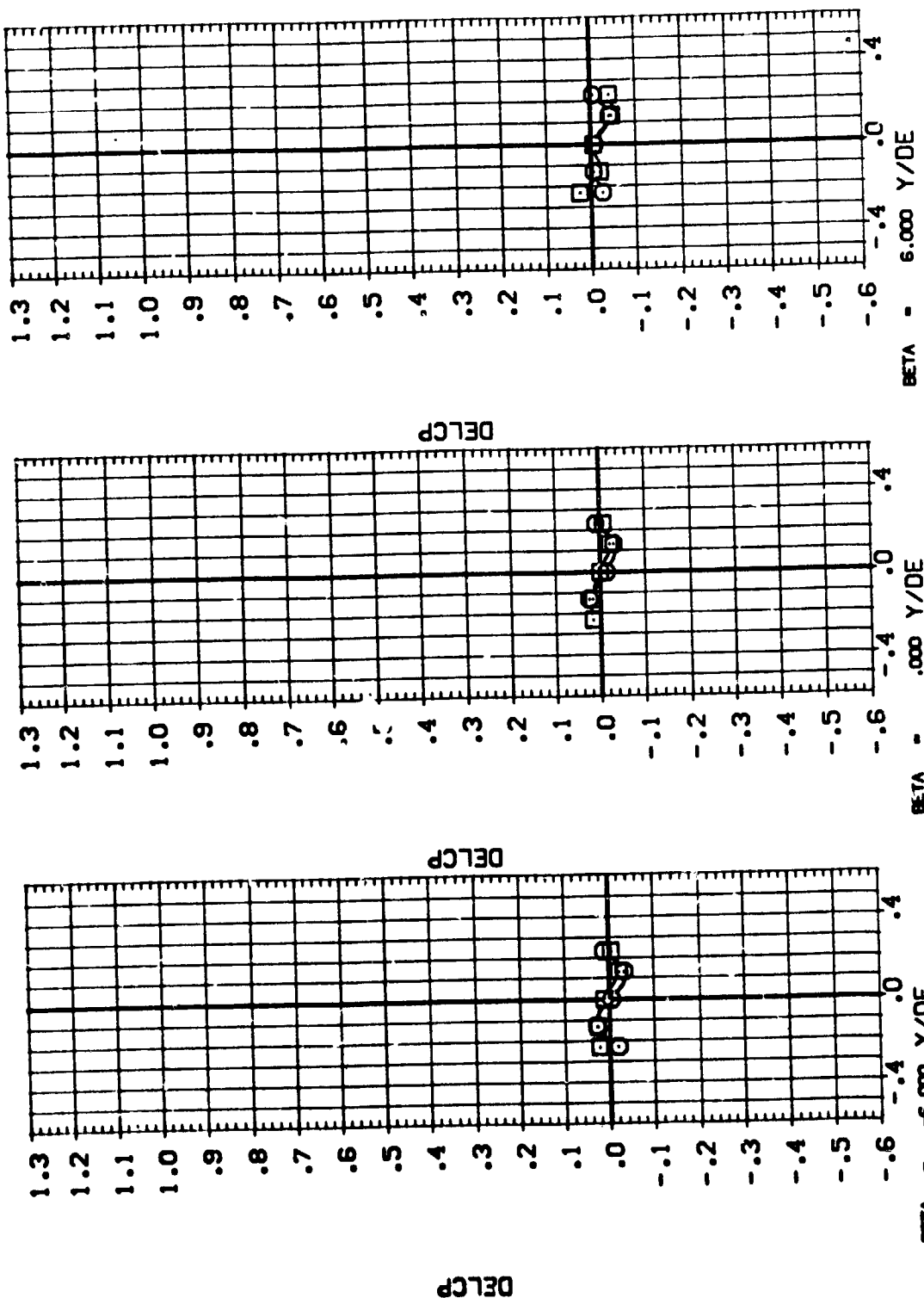
MACH = .900 X/DE = .754

DATA SET SYMBOL: ☐ CAL 114-053 (A36 02 + T1 + S1) UPPER MPS NOZZLE  
 (NLFAD02) ☐ CAL 114-053 (A36 02 + T1 + S1) UPPER MPS NOZZLE

ALPHA: .000 POWER: .000

OPR: 36.200

SRMPR: 2.300

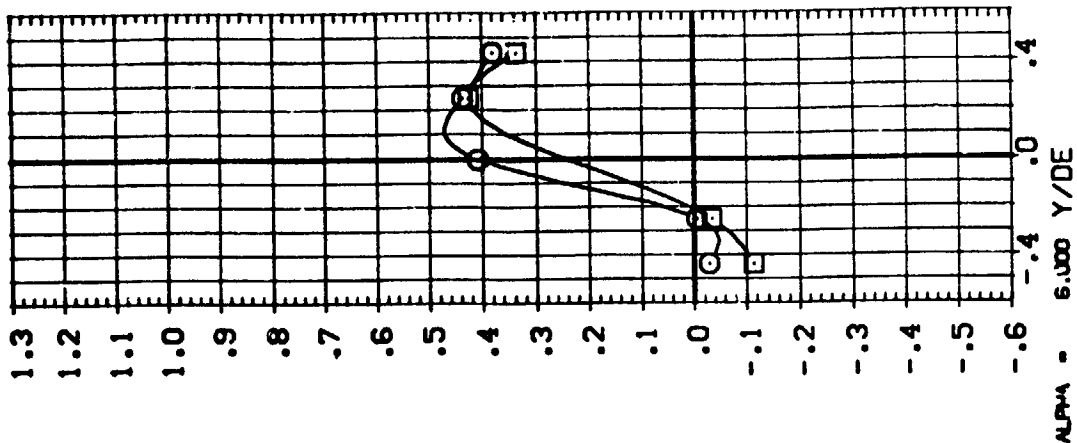
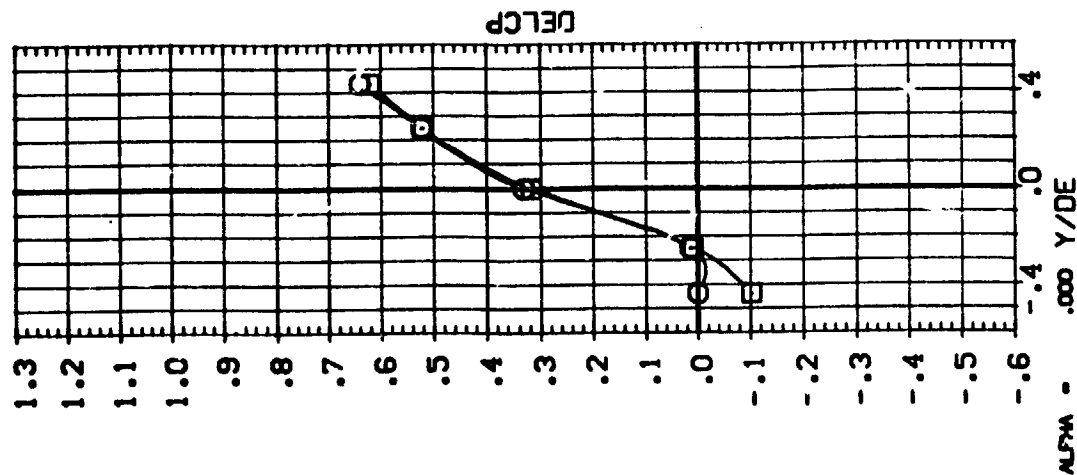
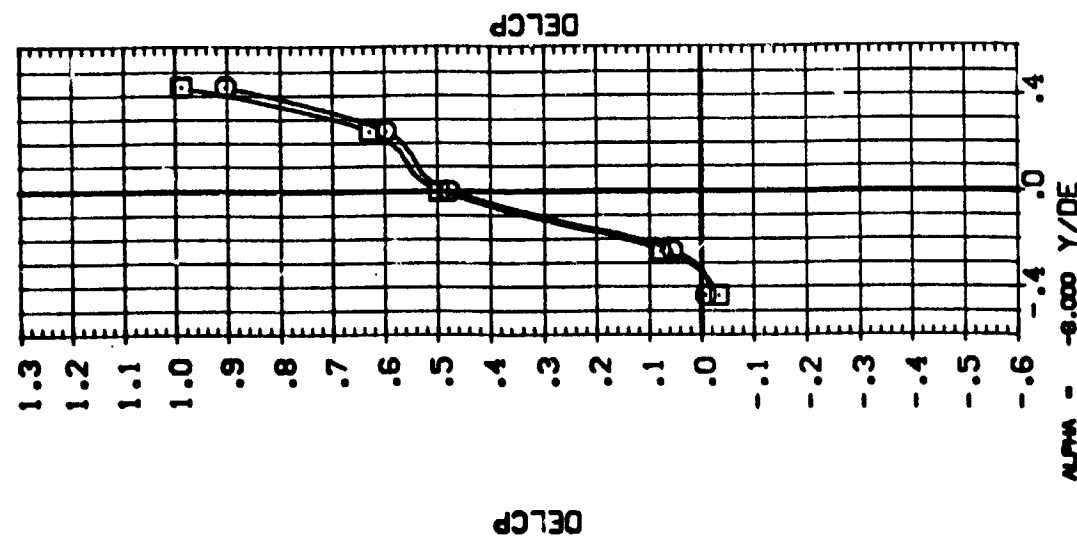


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .928



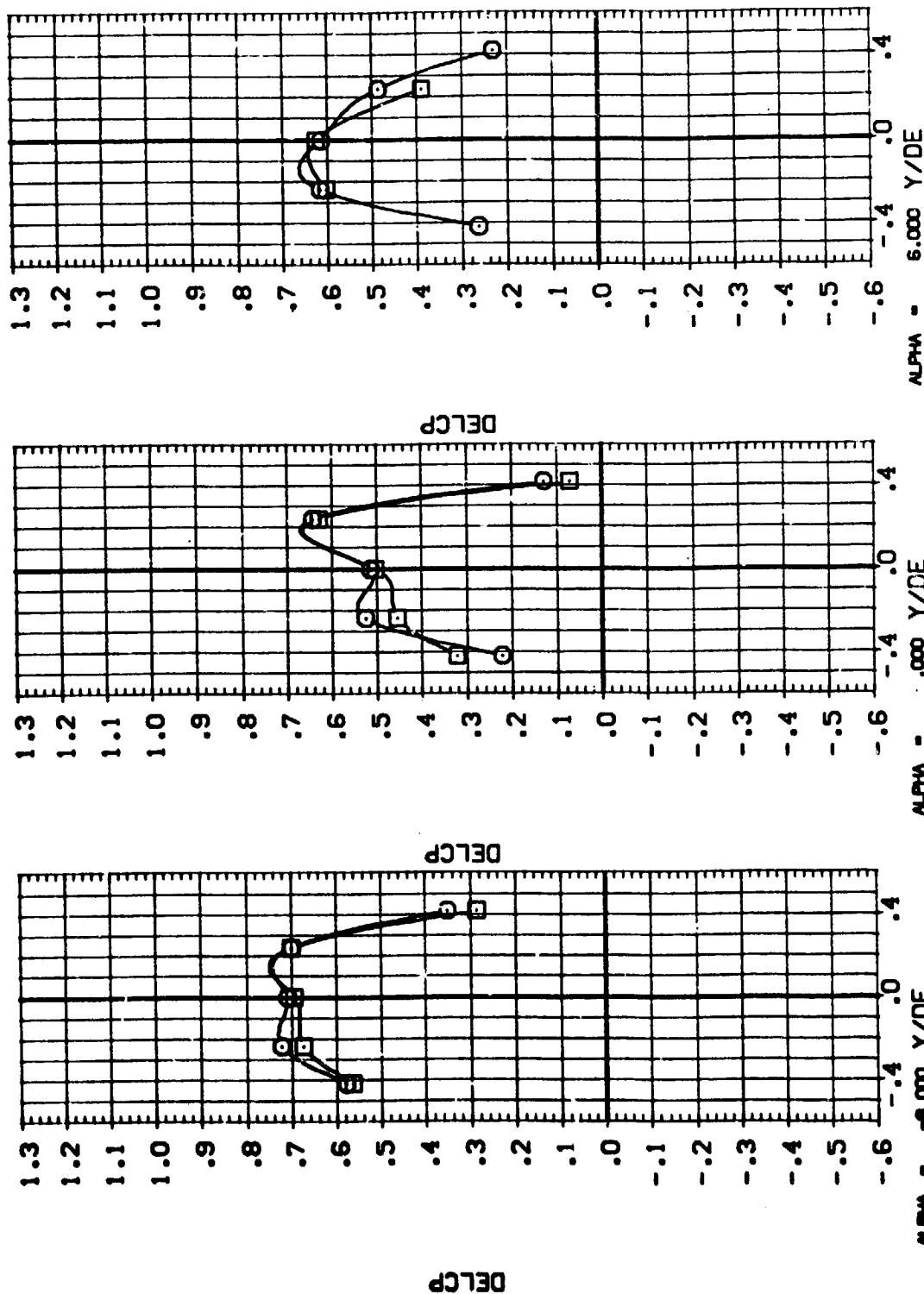
DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
(NUPA05) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
BETA: .000 POWER: .000 SPPR: 2.020  
OPR: 28.310



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: (NLFAD5) (NLFAD7) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE BETA: .000 POWER: .000 DPR: 28.310 SPR-R: 2.020



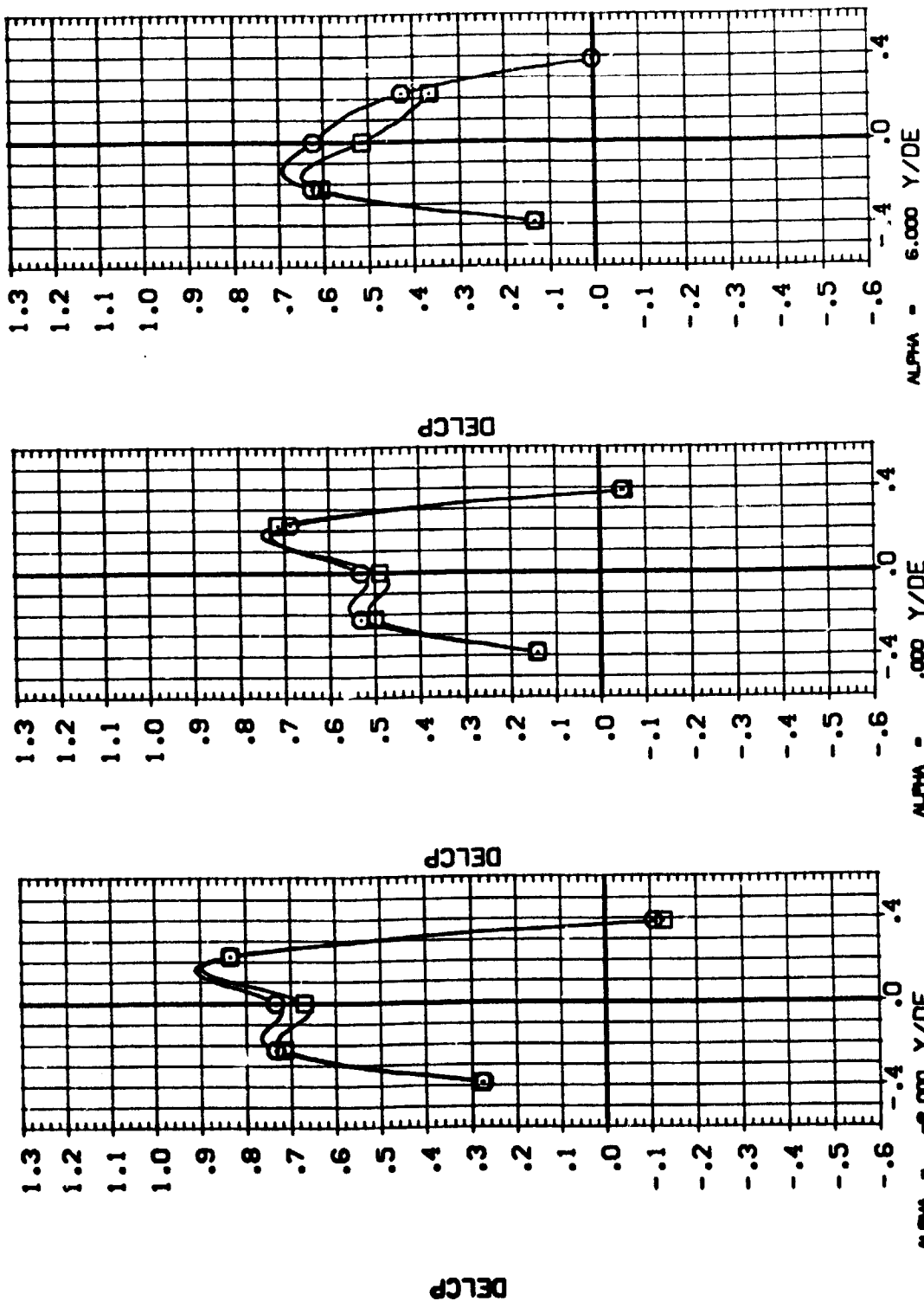
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMBO. CONFIGURATION DESCRIPTION  
 (NUFA05) □ CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUFA07) □ CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

BETA .000 .000  
 POWER 1.000 1.000  
 CPR 28.310 28.310  
 SWPR 2.020 2.020

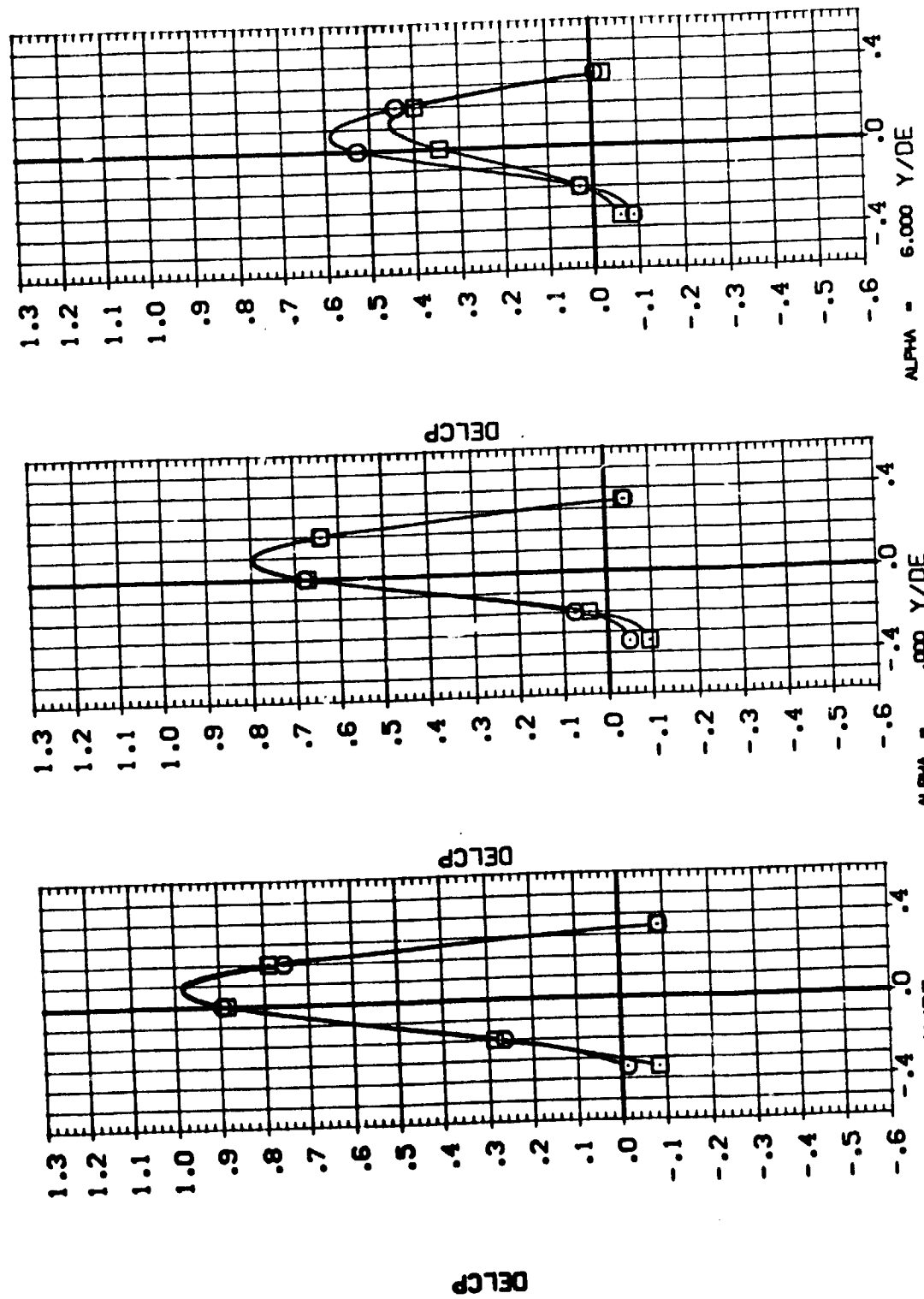


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUPAG5) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUPAG7)

BETA: .000 POWER: .000 SRPR: 2.020  
 .000 1.000 28.310



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

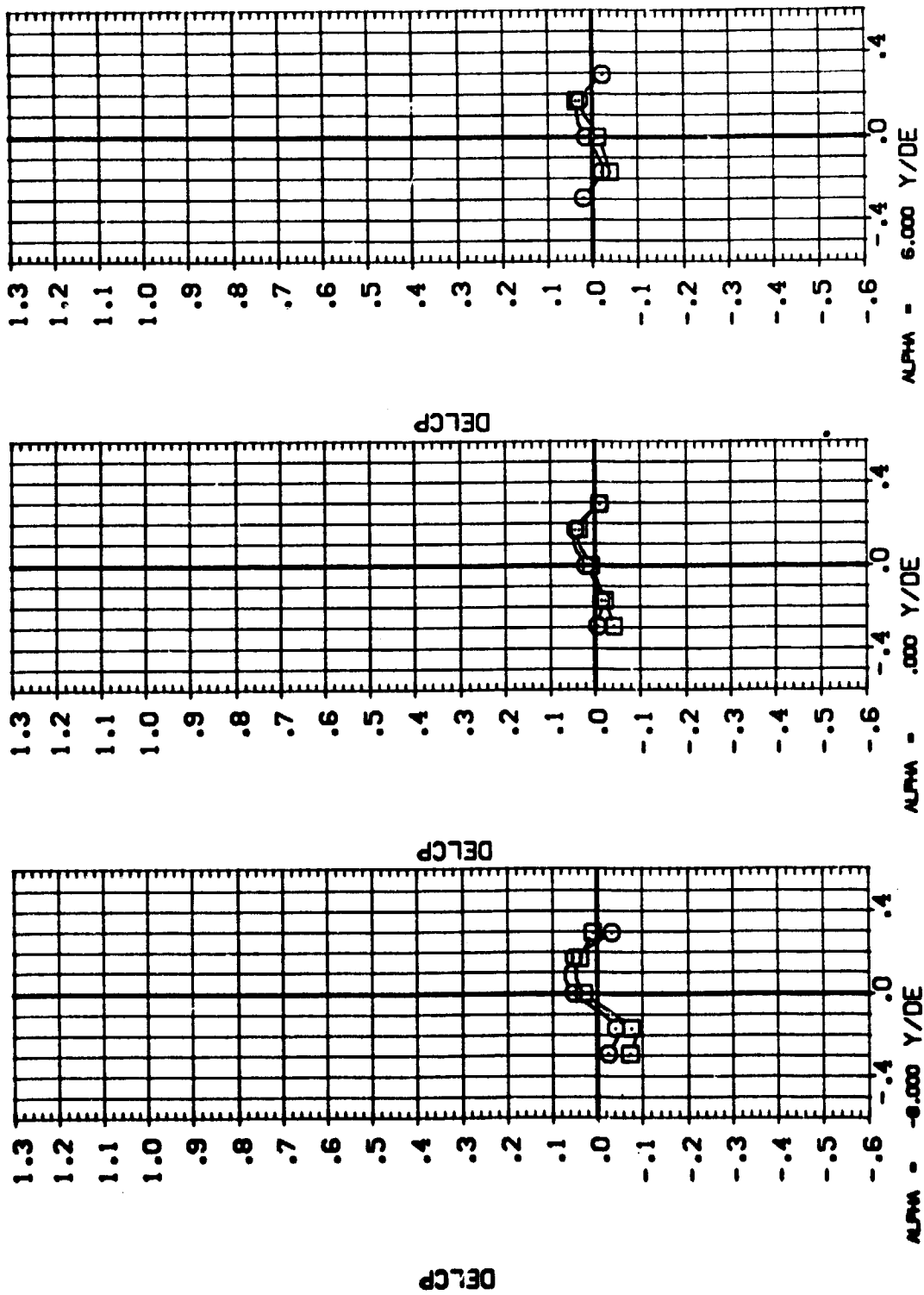
MACH = 1.200 X/DE = .580





DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 (NLFAD5) [ ] CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 (NLFAD7)

BETA POWER CPR SWPR  
 .000 .000 28.310 2.020



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .754

CAL	T14-053	I A36	O2 ♦ T1 ♦ SI	UPPER	MPS	NOZZLE
CAN	T14-053	I A36	O2 ♦ T1 ♦ SI	UPPER	MPS	NOZZLE

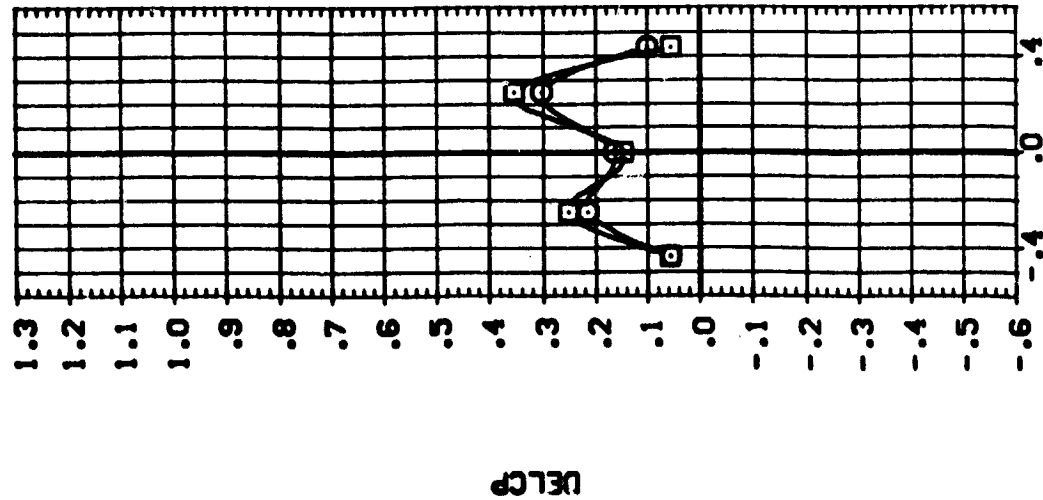


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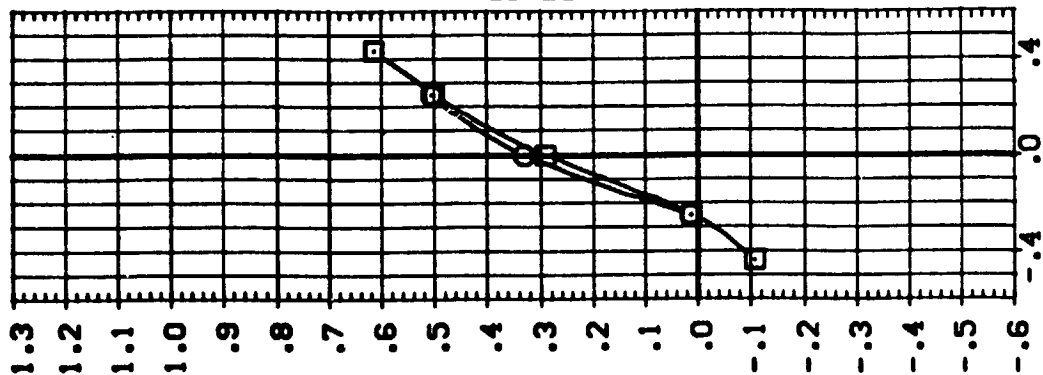
DATA SET SYMBOL. CONFIGURATION DESCRIPTION  
(NUPA08) CAL 114-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE  
(NUPA08) CAL 114-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE

ALPHA .000 .000  
POWER 1.000 1.000  
OPR 29.310 2.020  
SWPR

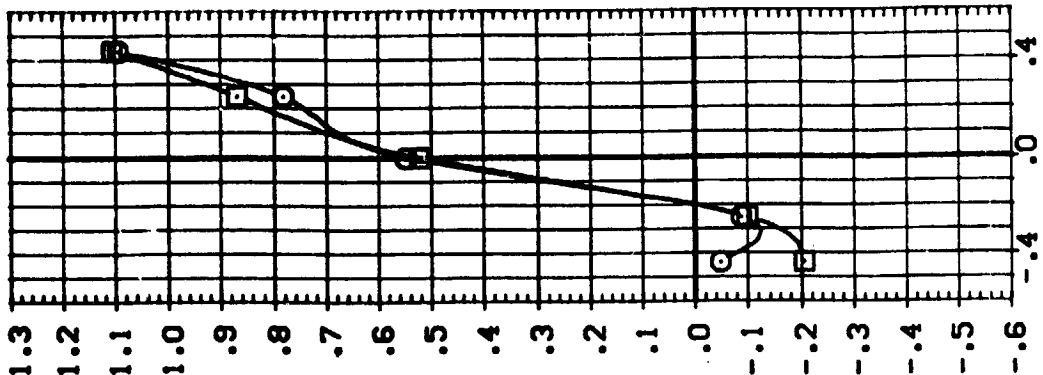


BETA = -0.000 Y/DE

MACH = 1.200 X/DE = .058



BETA = .000 Y/DE



BETA = 6.000 Y/DE

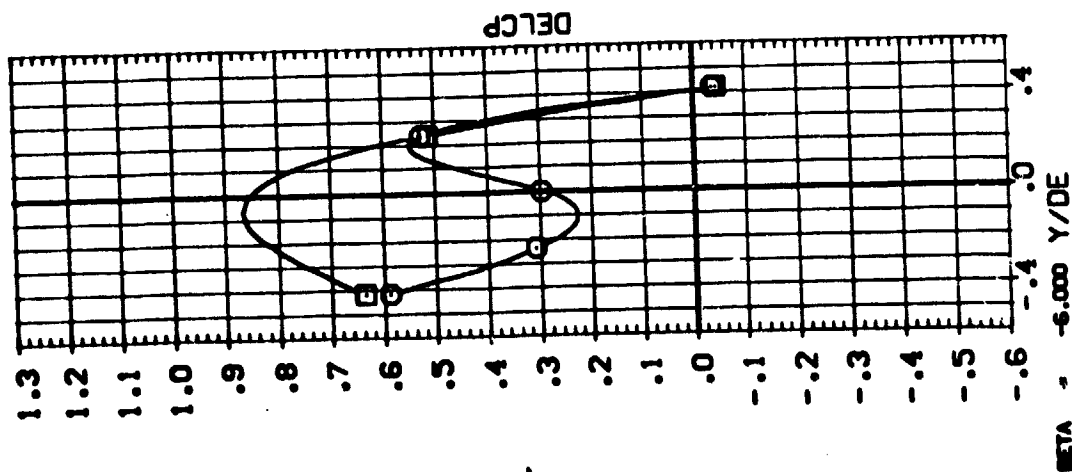
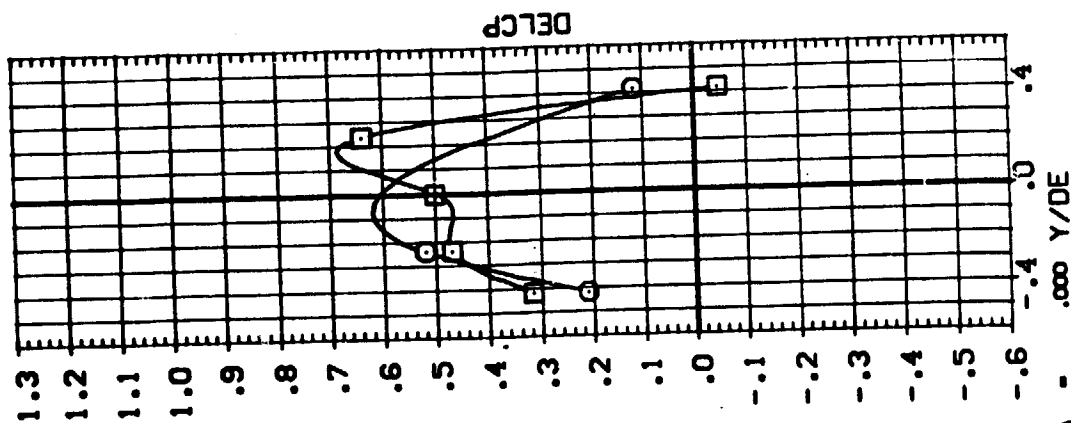
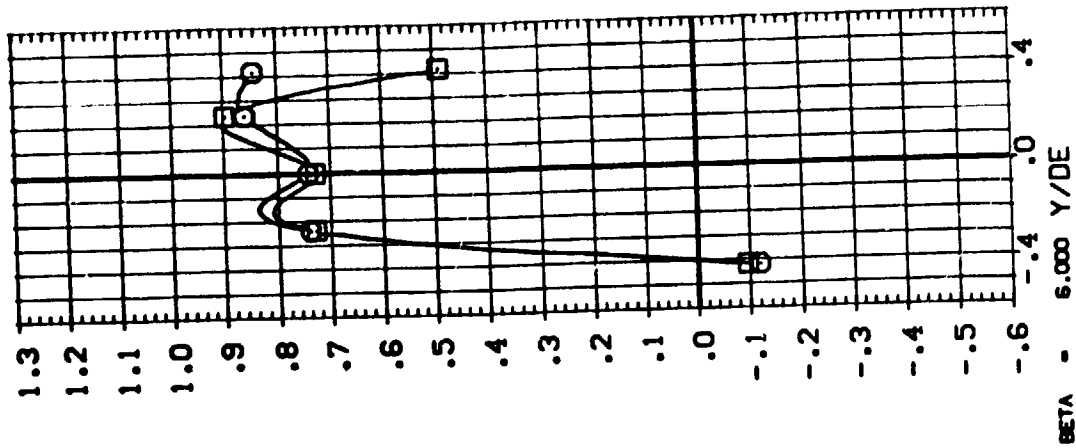
### DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

DATA SET SYMBOL: CAL 114-053 IAS6 02 : T1 : S1 UPPER MPS NOZZLE  
 (NUPAS) B (NUPAS)

ALPHA POWER CRR SPRR  
 .000 .000 28.310 2.020

CONFIGURATION DESCRIPTION

CAL 114-053 IAS6 02 : T1 : S1 UPPER MPS NOZZLE

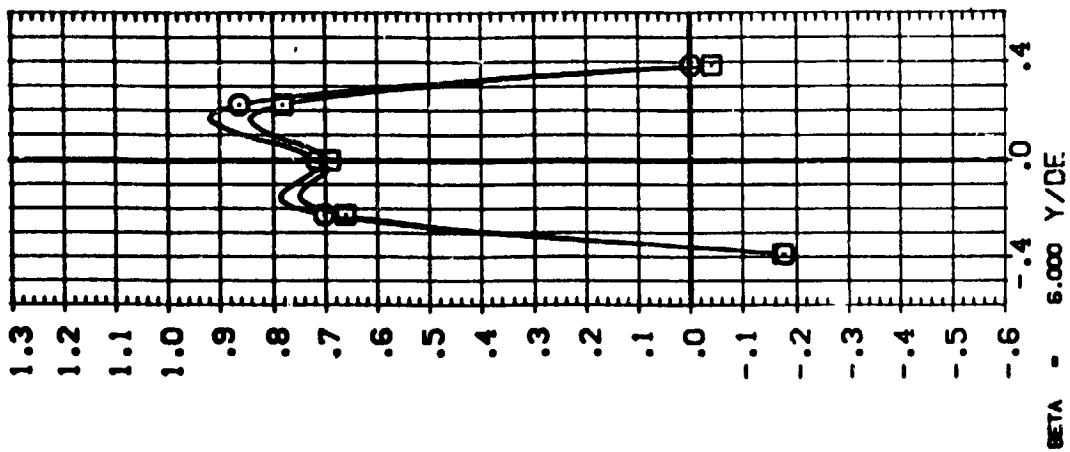
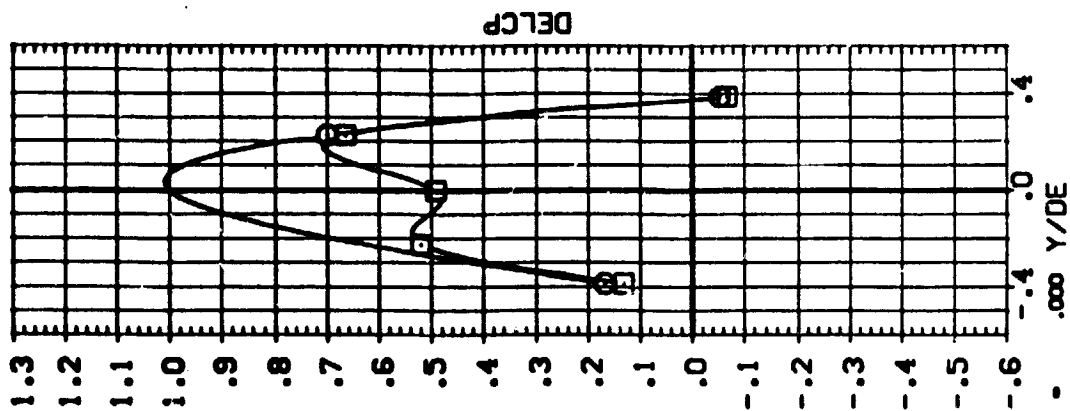
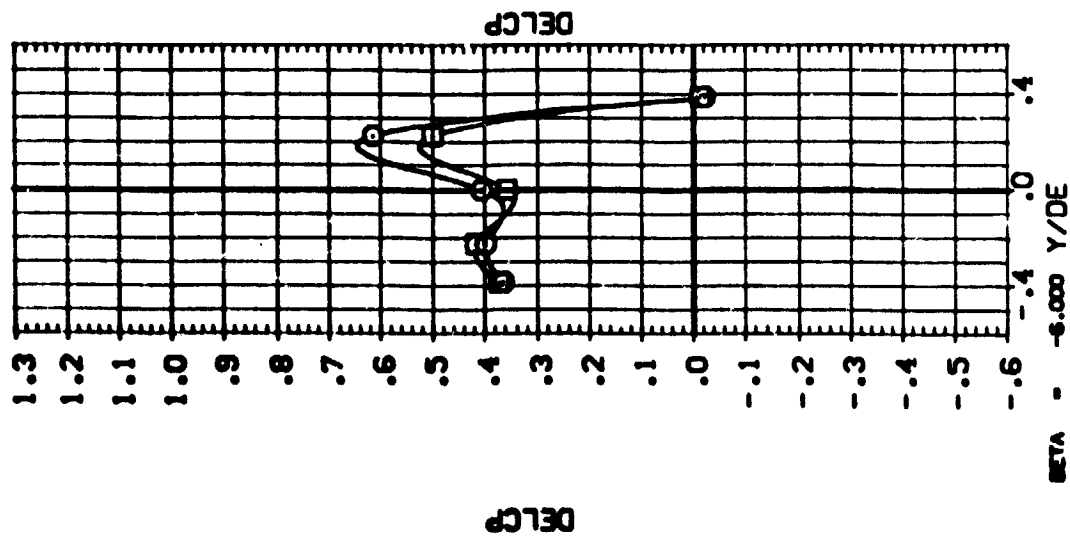


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 (M/FAS) (M/FAS) ALPHA: .000 POWER: .000 SFR: 28.310 SNR: 2.000



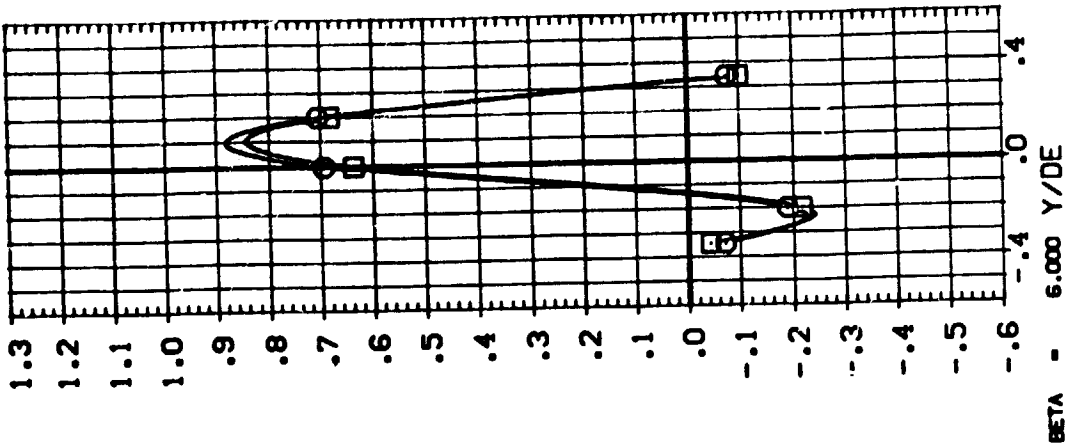
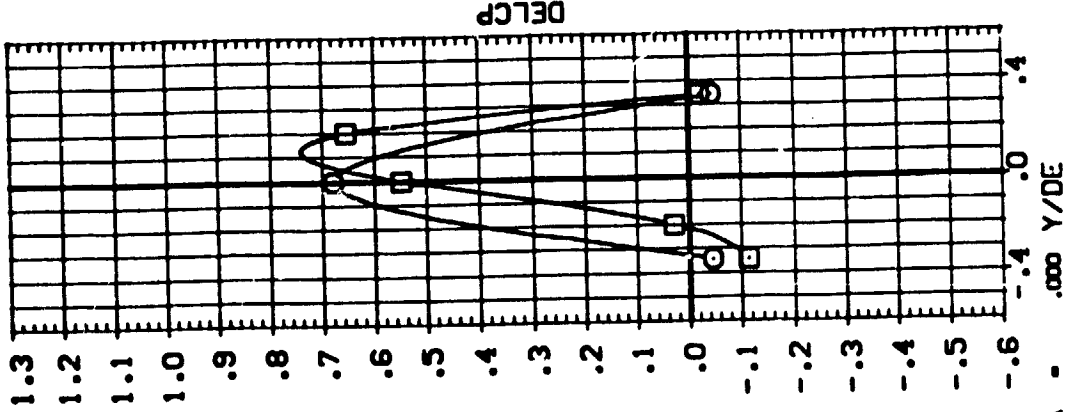
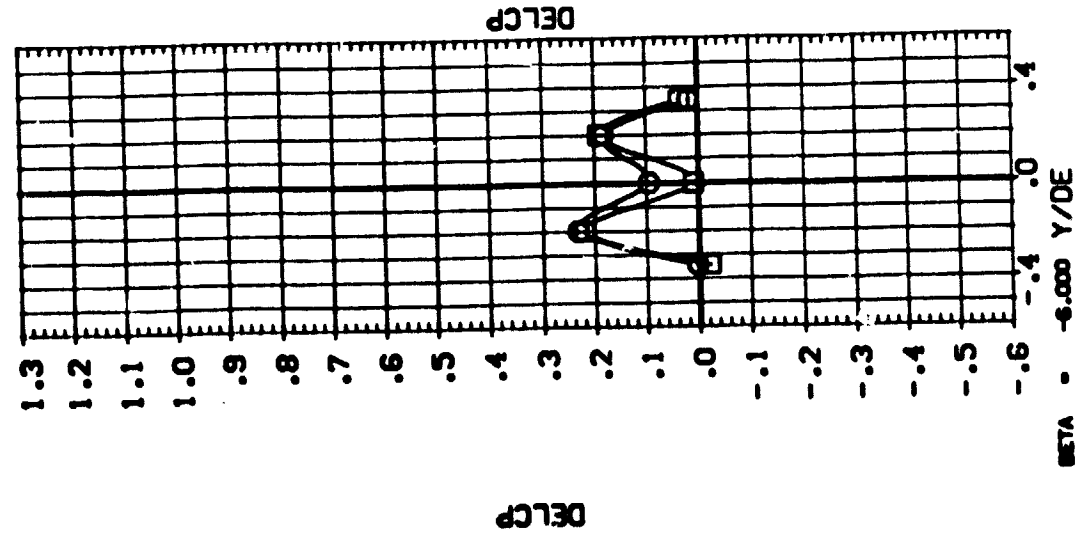
# DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: 8 CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 (NUPA05) (NUPA06)

ALPHA POWER DPR SHPR

.000 .000 28.310 2.020

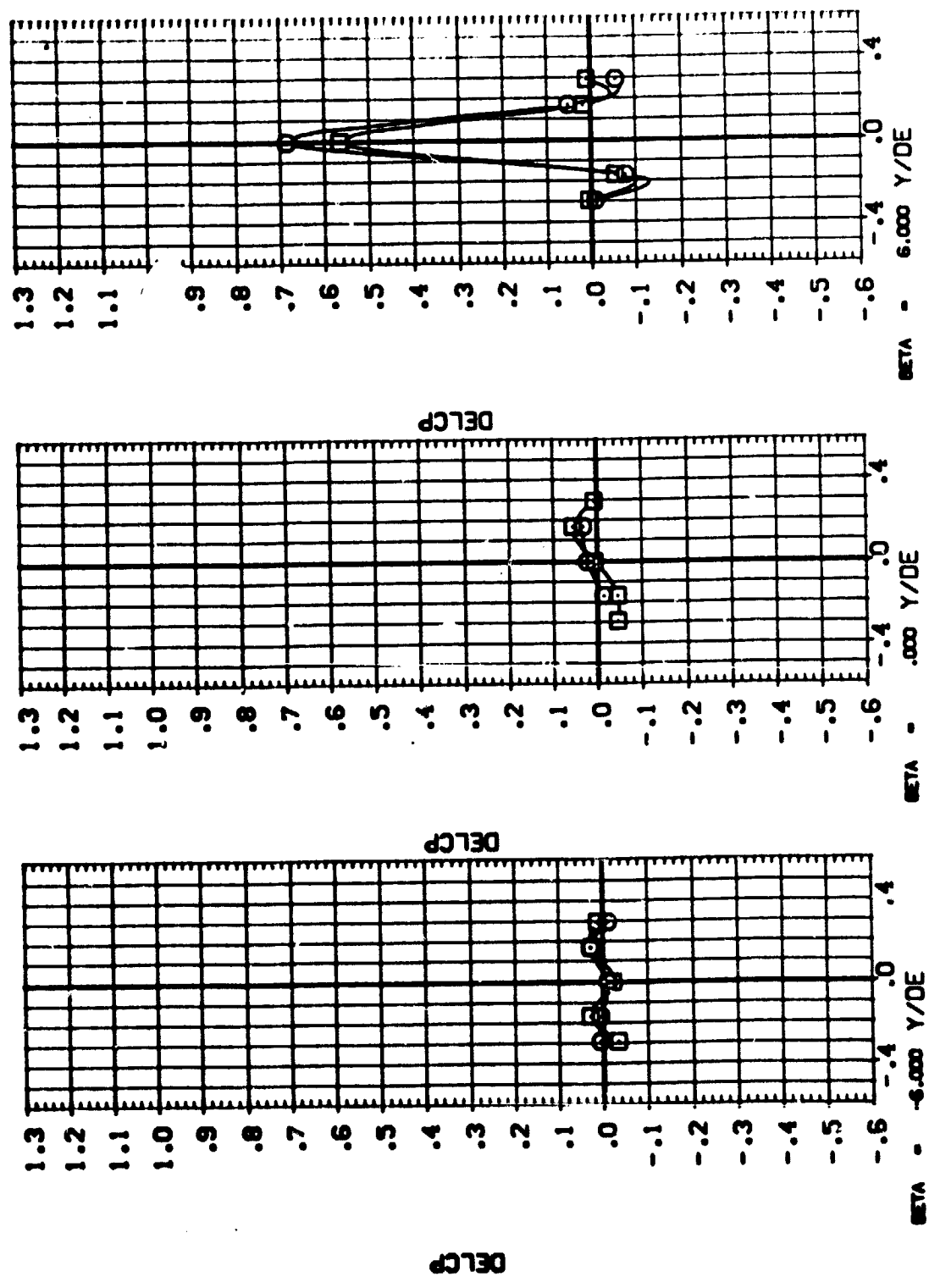


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .580



DATA SET SYMBOL: CAL 114-053 (A38 02 : 11 : S1) UPPER MPS NOZZLE  
(MUFAD3) CAL 114-053 (A38 02 : 11 : S1) UPPER MPS NOZZLE  
ALPHA POWER OFF SPR  
.000 .000 28.310 2.020  
.000 1.000

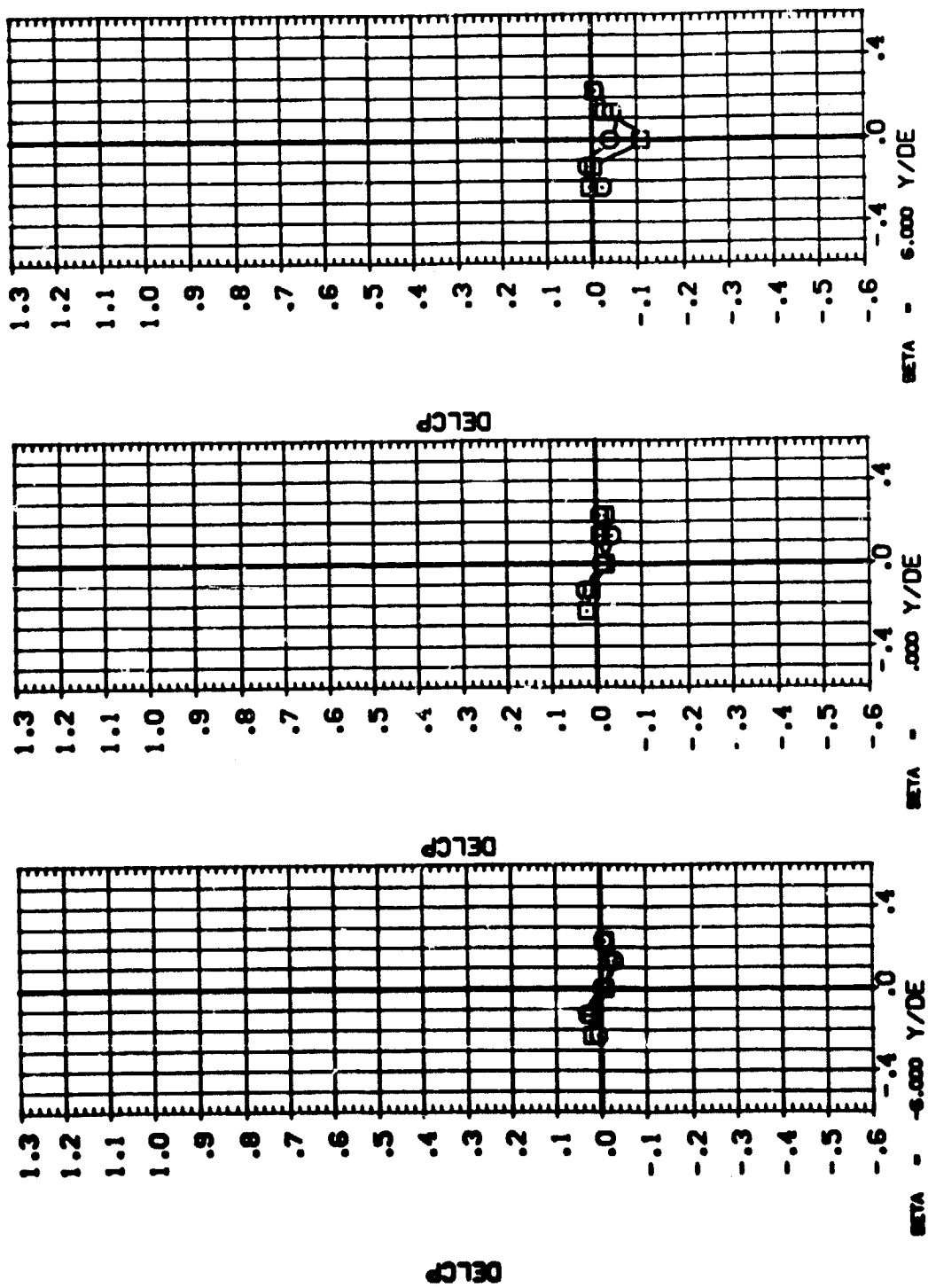


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .754

DATA SET SHEET. CONFIGURATION DESCRIPTION  
 (M/F/AGE) 0 02L T14-083 1238 02 : T1 : S1 UPPER MPS NOZZLE  
 (M/F/AGE) 0 02L T14-083 1238 02 : T1 : S1 UPPER MPS NOZZLE

ALPHA .000 .000 .000  
 POWER .000 .000 .000  
 C/P 28.310 2.020



BETA - 0.000 Y/DE  
 BETA - .000 Y/DE  
 BETA - 6.000 Y/DE

DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .928

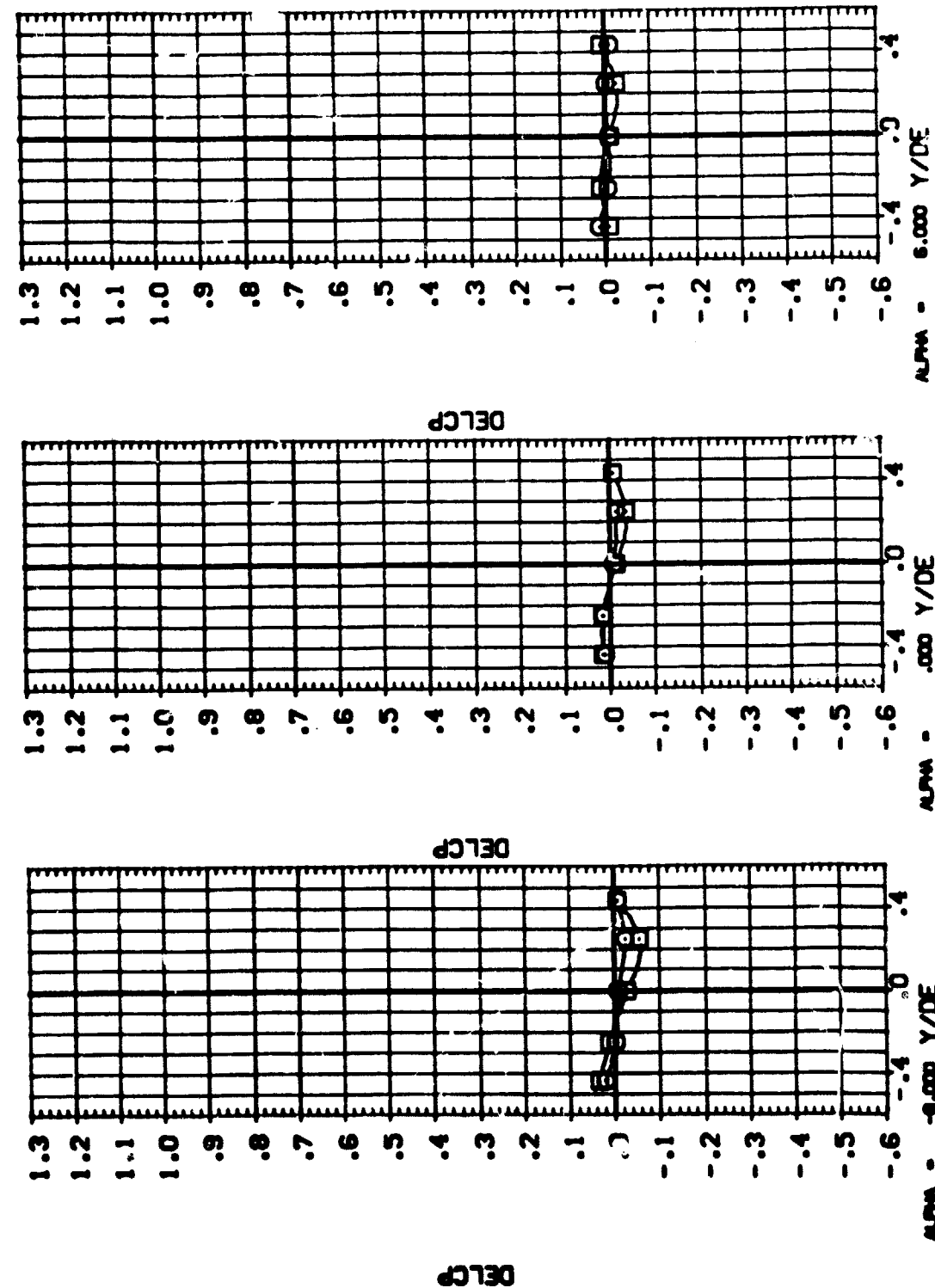
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DATA SET SHEET. CONFIGURATION DESCRIPTION  
(MUST BE) CAL T14-053 (A38 02 : T1 : S1) LOWER LH MPS NOZ.  
(MUST BE) CAL T14-053 (A38 02 : T1 : S1) LOWER LH MPS NOZ.

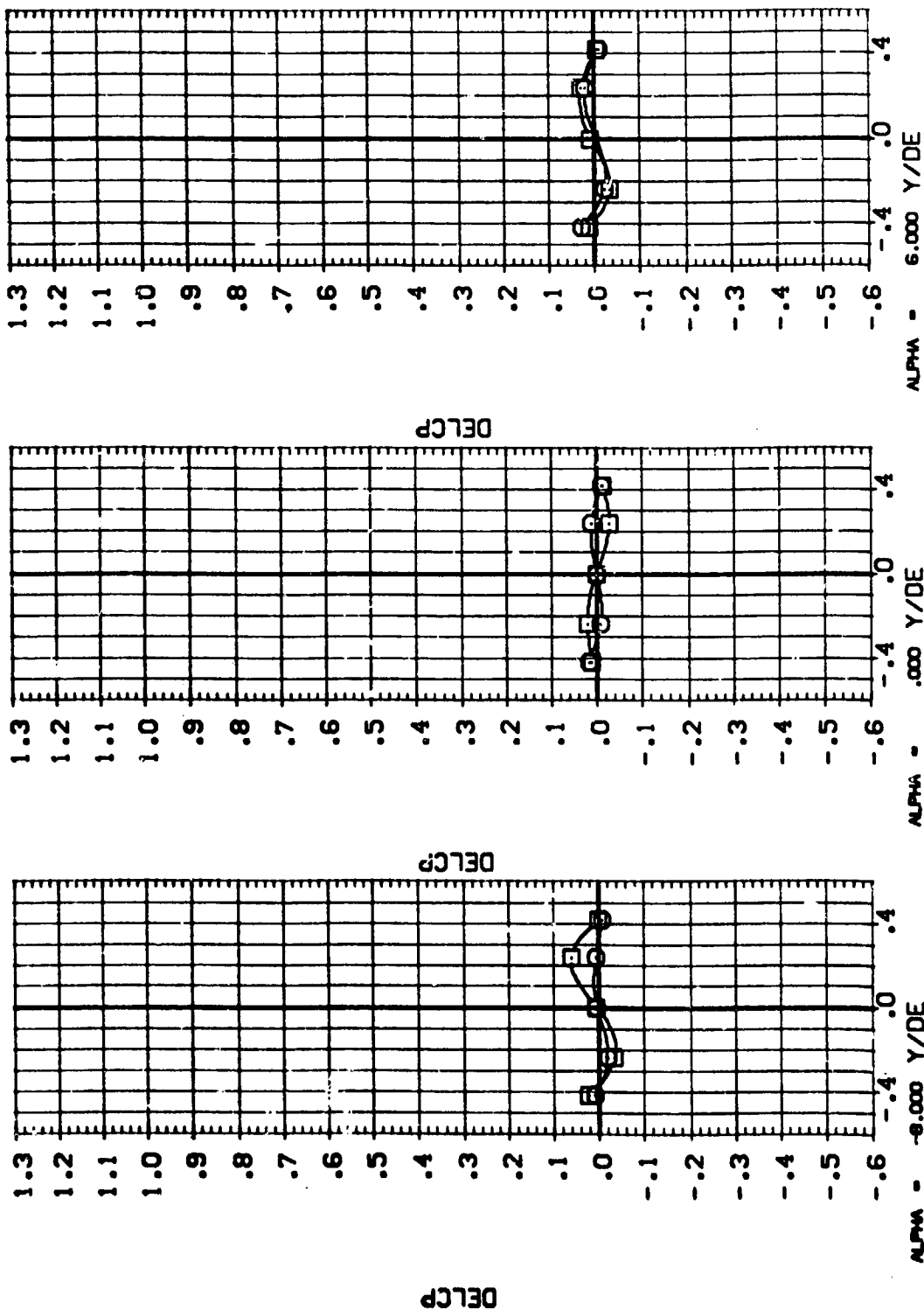
BETA POWER DPR SNRPR  
.000 .000 36.200 2.300



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: (NUPB01) (NUPB03) CONFIGURATION DESCRIPTION: CAL 714-053 IAS6 Q2 : 71 : SI LOWER LH MPS NOZ: CAL 714-053 IAS6 Q2 : 71 : SI LOWER LH MPS NOZ: BETA: .000 .000 POWER: .000 .000 QPR: 36.200 SHPR: 2.300

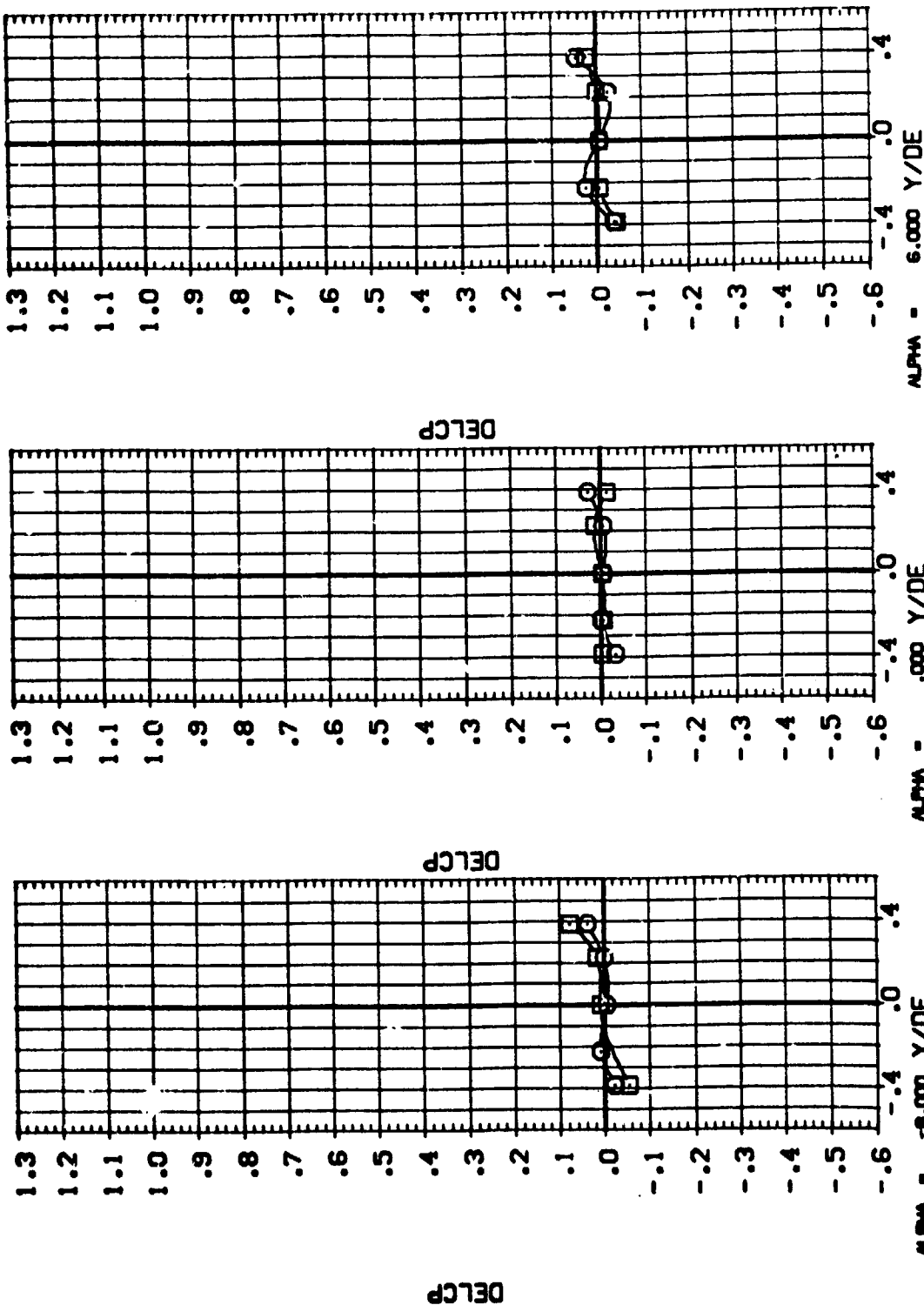


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .232



DATA SET SYMBOL: (NLF801) ☐ (NLF803) ☐ CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ. BETA: .000 POWER: .000 CPM: 36.200 SWPR: 2.300



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 [A36 02 + T1] + S1 LOWER LH MPS NOZ.  
 (NLF801) CAL T14-053 [A36 02 + T1] + S1 LOWER LH MPS NOZ.  
 (NLF803)

SRMPR

OPR

POWER

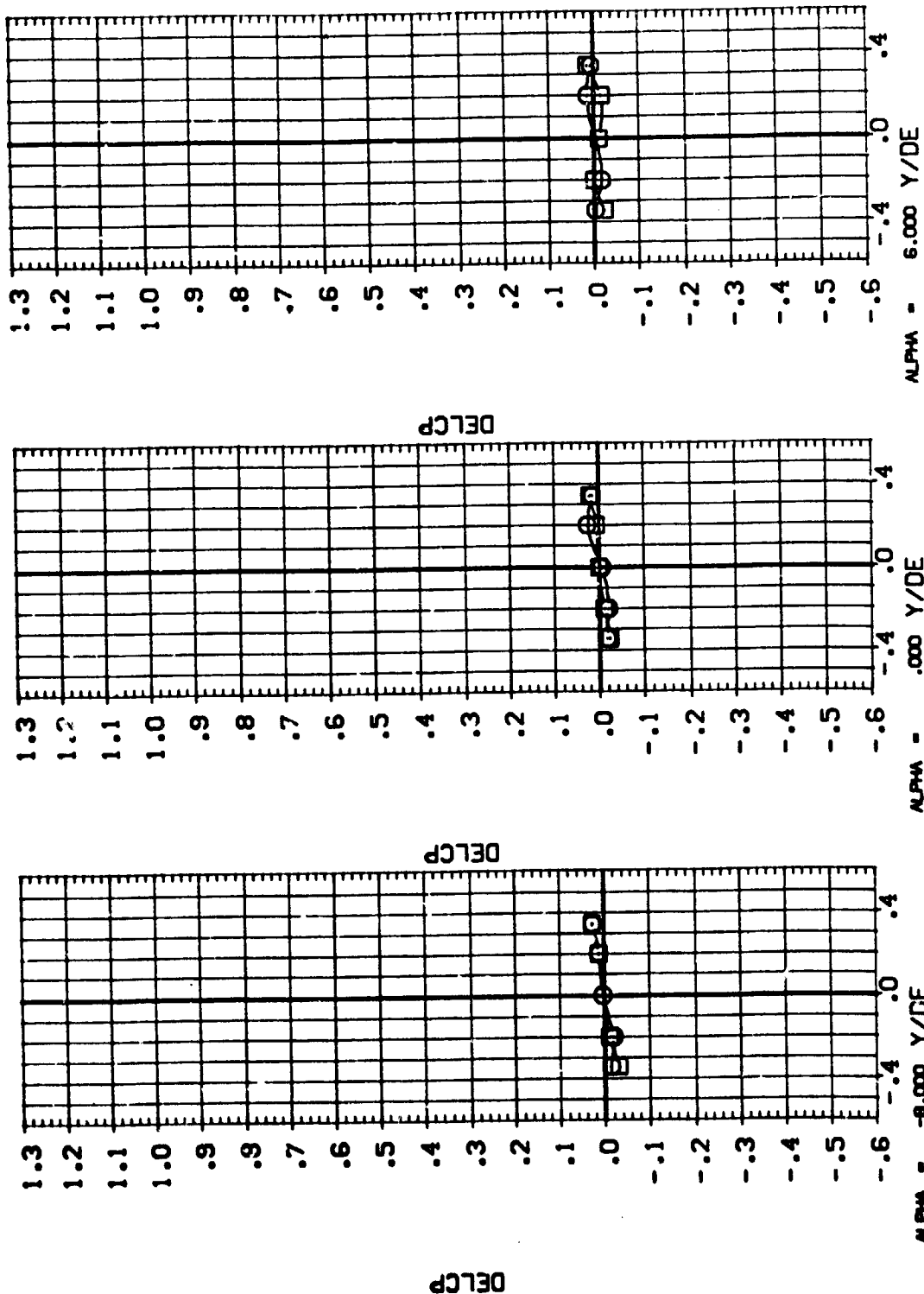
BETA

2.300

36.200

1.000

1.000



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .580

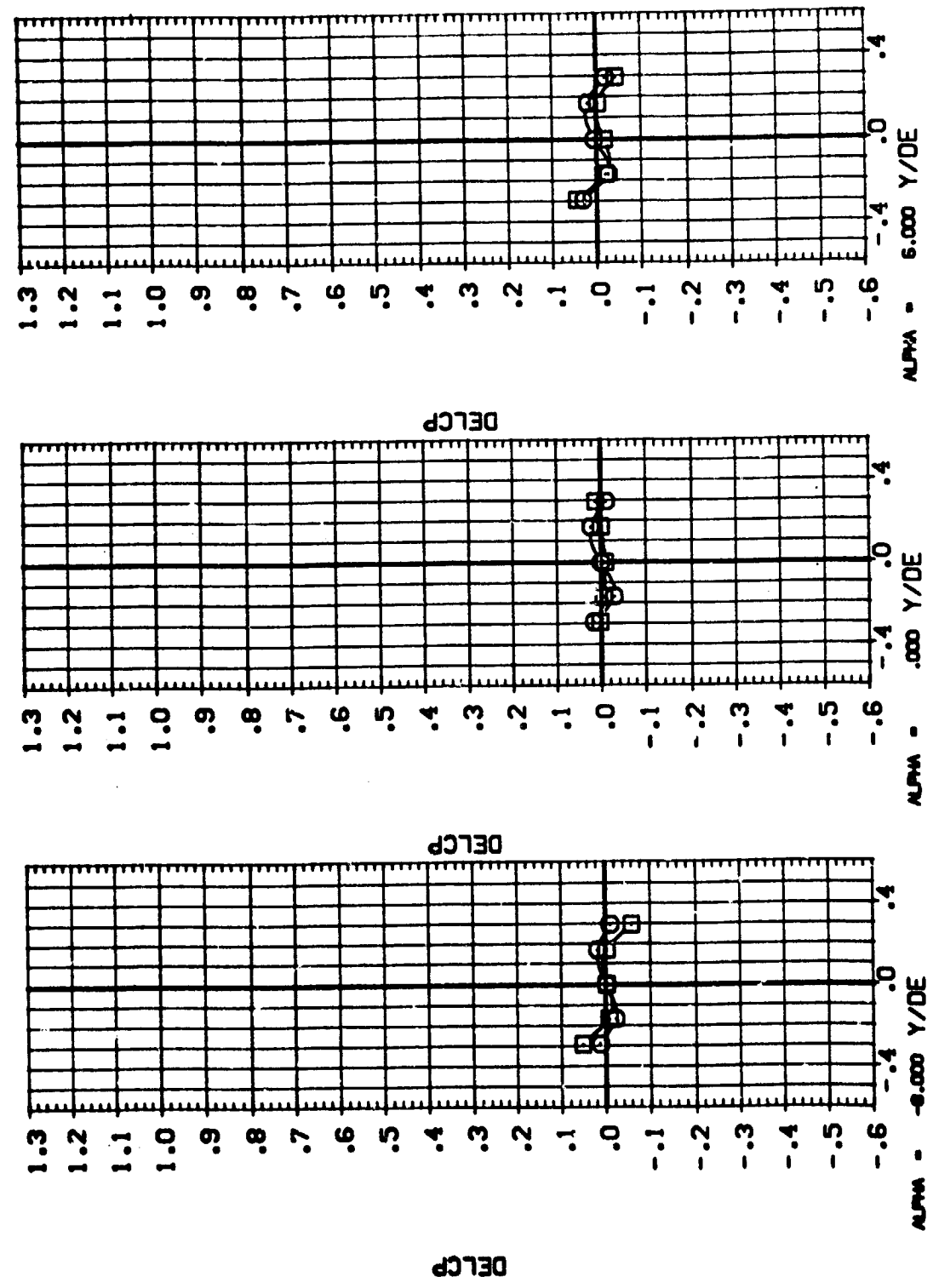


DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
(NLF801) B CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
(NLF803)

BETA: .000 .000  
POWER: .000 1.000  
CPR: 36.200 2.300

CONFIGURATION DESCRIPTION

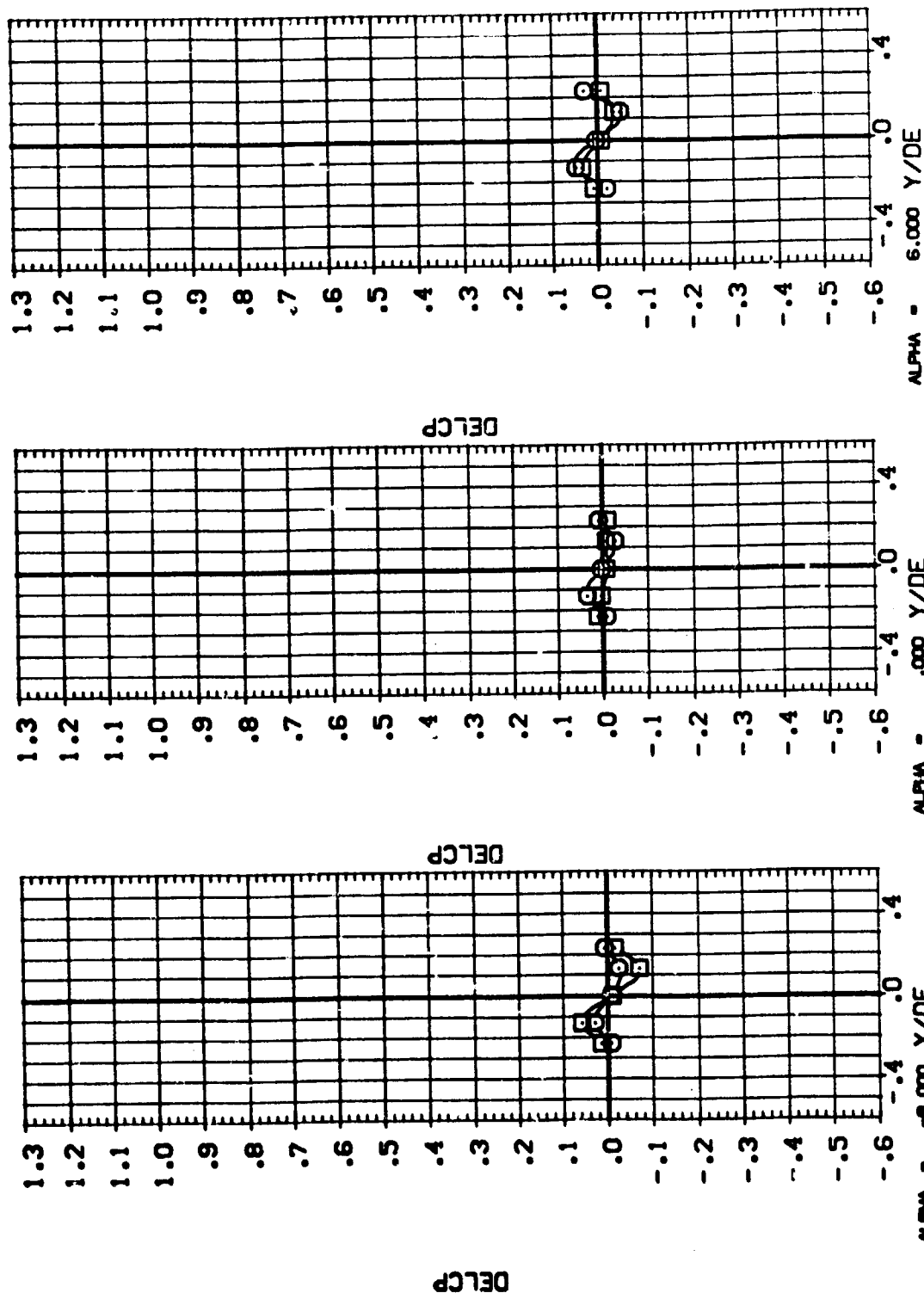
CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.  
CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ.



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL: (NUPB01) (NUPB03) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ. CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ. BETA: .000 .000 POWER: 1.000 1.000 OPR: 36.200 SRMR: 2.330



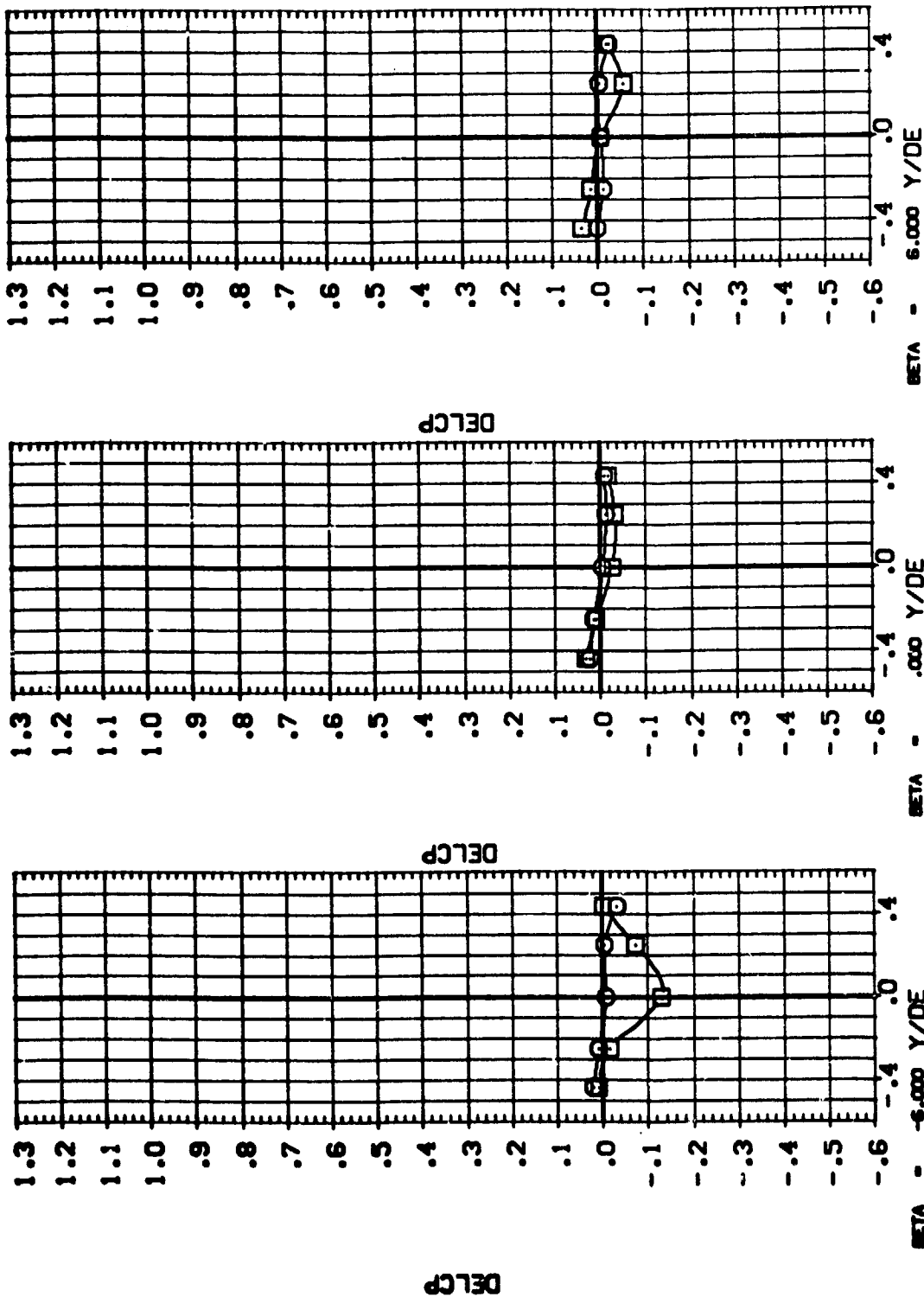
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL: 8  
 CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (NUS802) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (NUS804)

ALPHA: .000  
 POWER: .000  
 CTR: 36.200  
 SHPR: 2.330



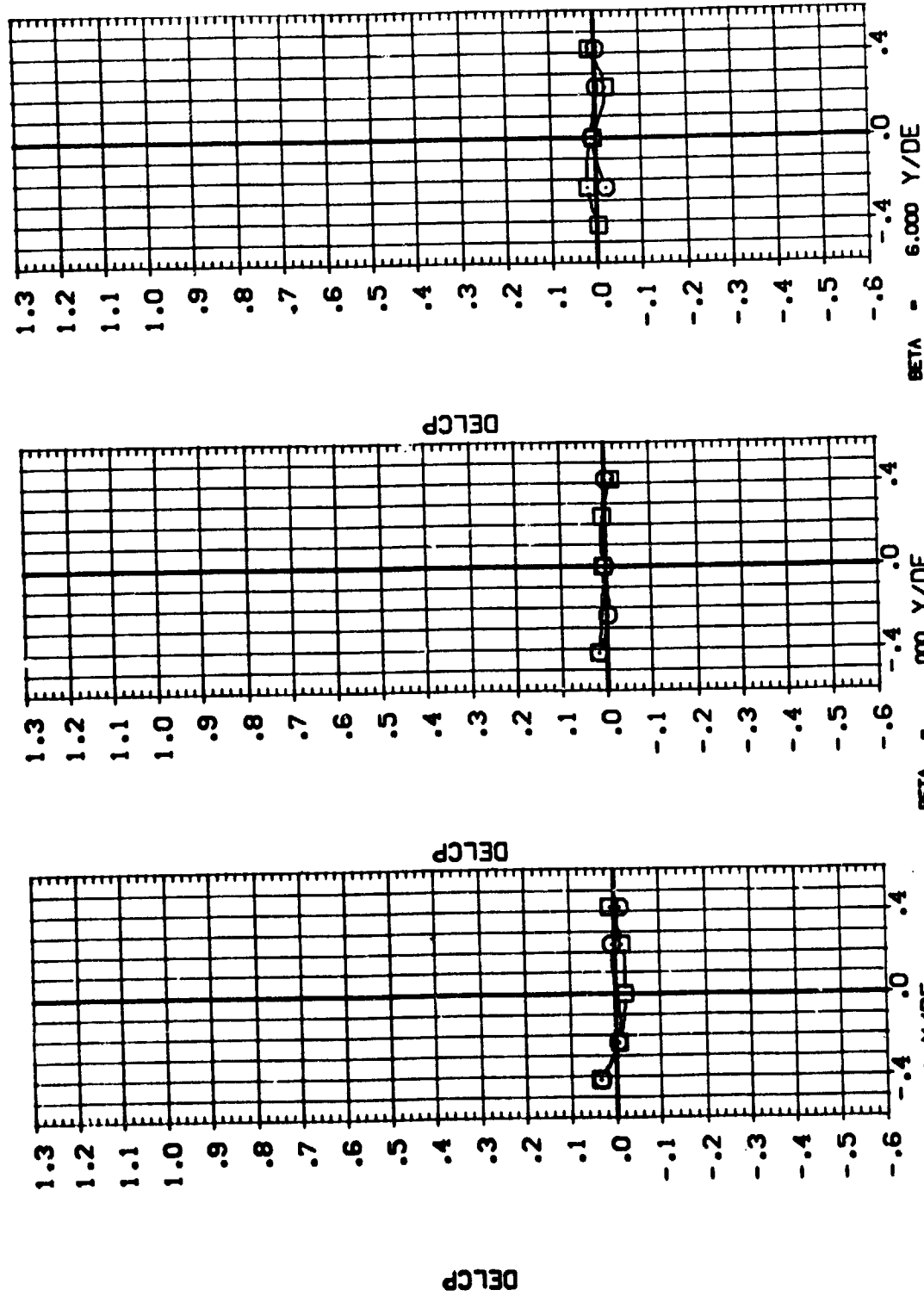
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: 8  
 (NUPB02)  
 (NUPB04)

CONFIGURATION DESCRIPTION  
 CAL T14-053 IAS6 02 ÷ T1 ÷ S1 LOWER LH MPS NOZ:  
 CAL T14-053 IAS6 02 ÷ T1 ÷ S1 LOWER LH MPS NOZ:

ALPHA POWER CPR SRPR  
 .000 .000  
 .000 1.000 36.200 2.300



BETA = -6.000 Y/DE  
 BETA = -6.000 Y/DE  
 BETA = -6.000 Y/DE  
 DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE  
 MACH = .900 X/DE = .232



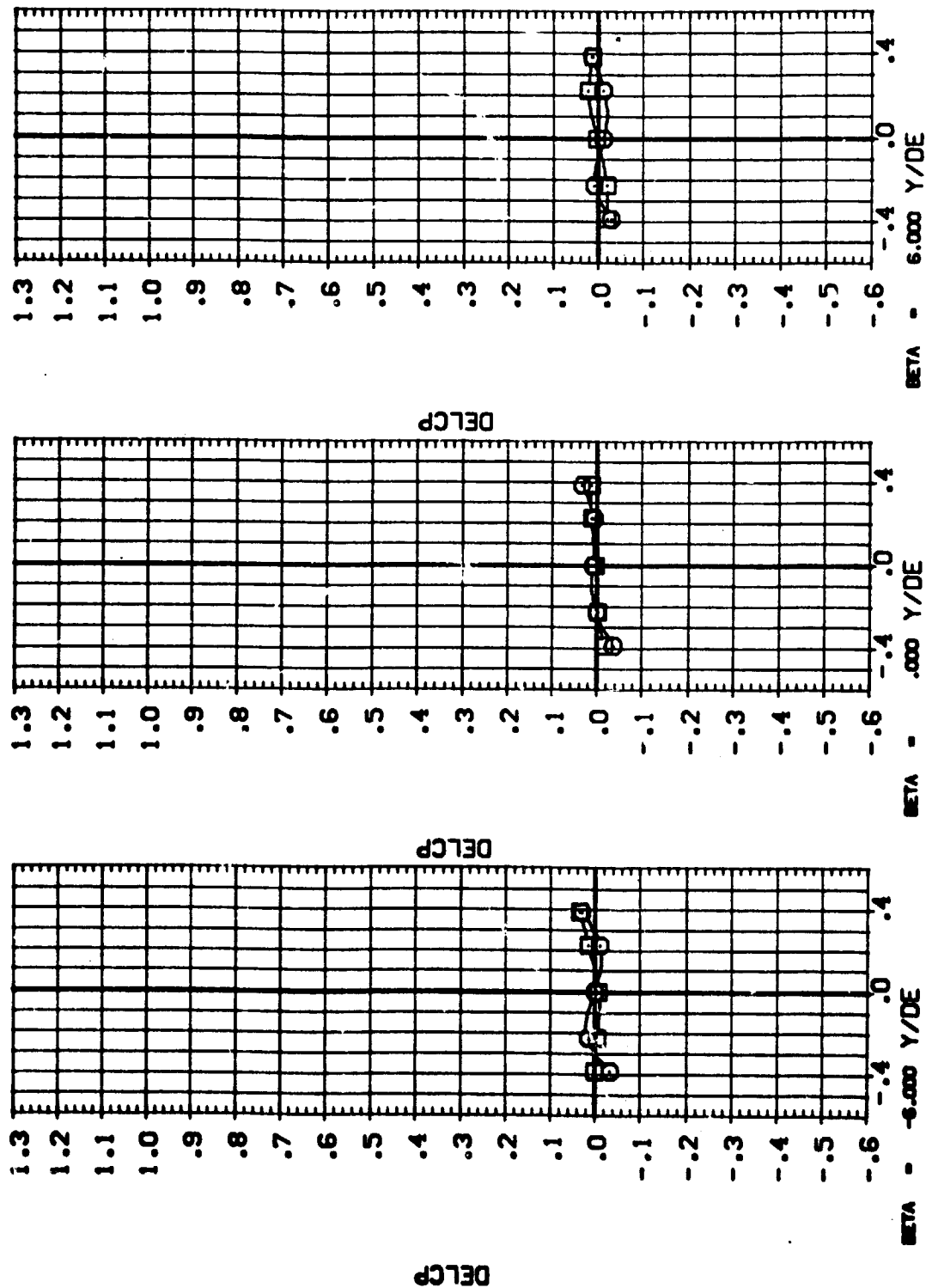


DATA SET SYMBOL CONFIGURATION DESCRIPTION

(NUPB02) ☐ CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ:

(NUPB04) ☐ CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ:

ALPHA POWER CPR SPRR  
.000 .000  
.000 1.000 36.200 2.330



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

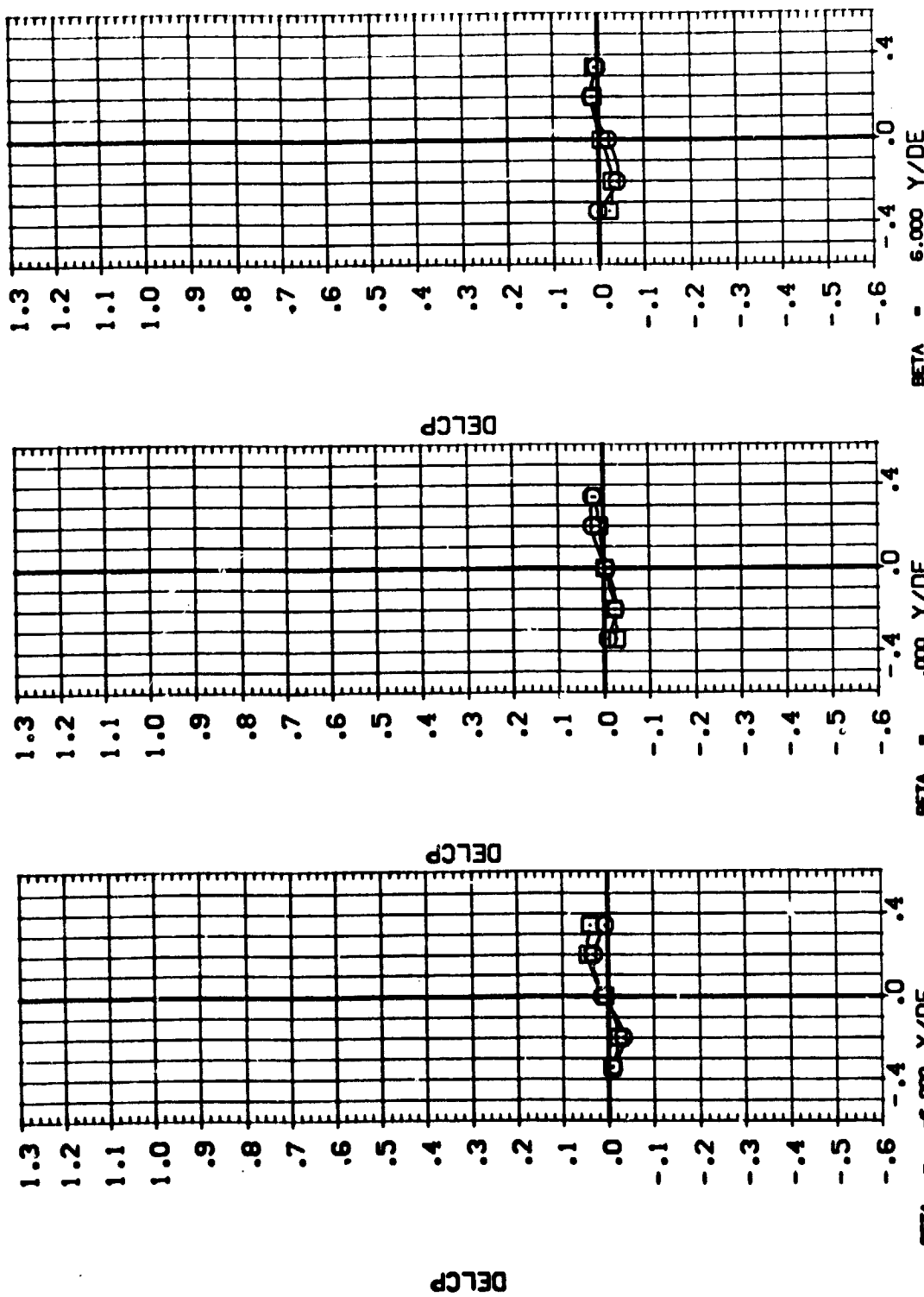
MACH = .900 X/DE = .406

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(NUMBER) ☐ (NUMBER)

CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.

ALPHA .000 .000  
POWER .000 1.000  
OPR 36.200  
SRPR 2.300



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

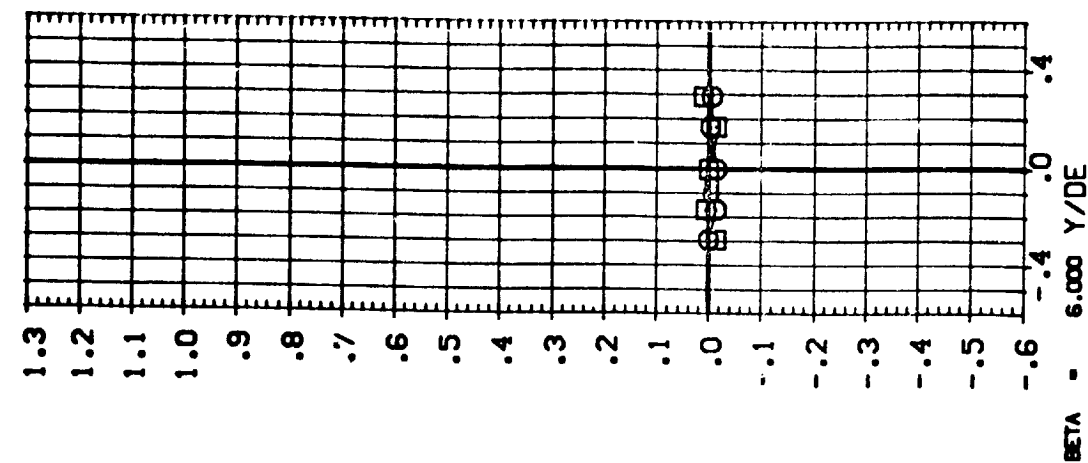
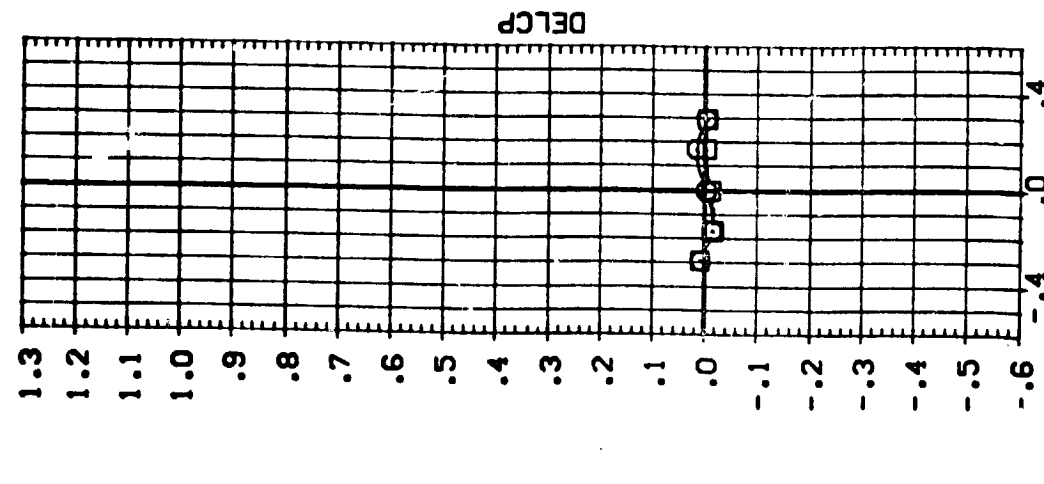
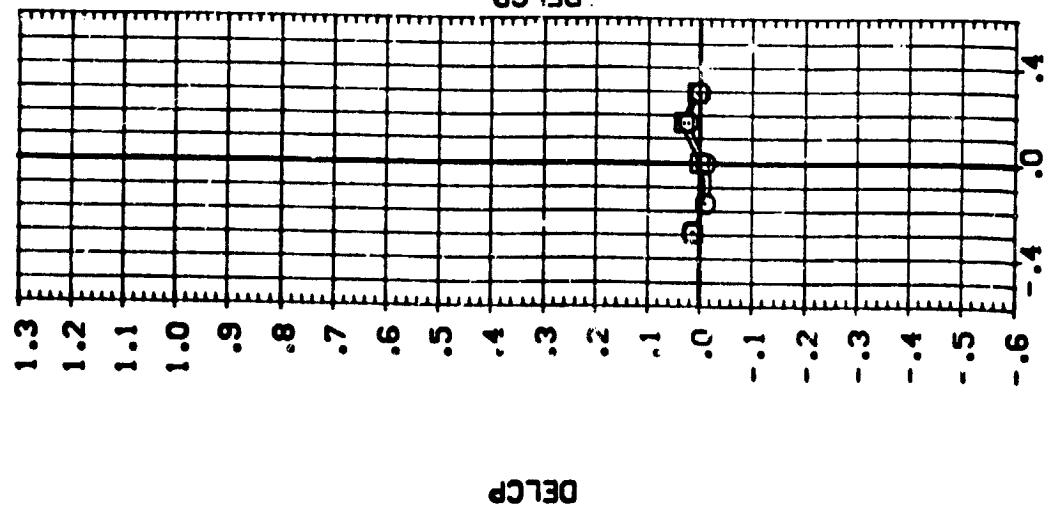
MACH = .900 X/DE = .580



DATA SET SYMBOL: 8  
 (NLF802)  
 (NLF804)

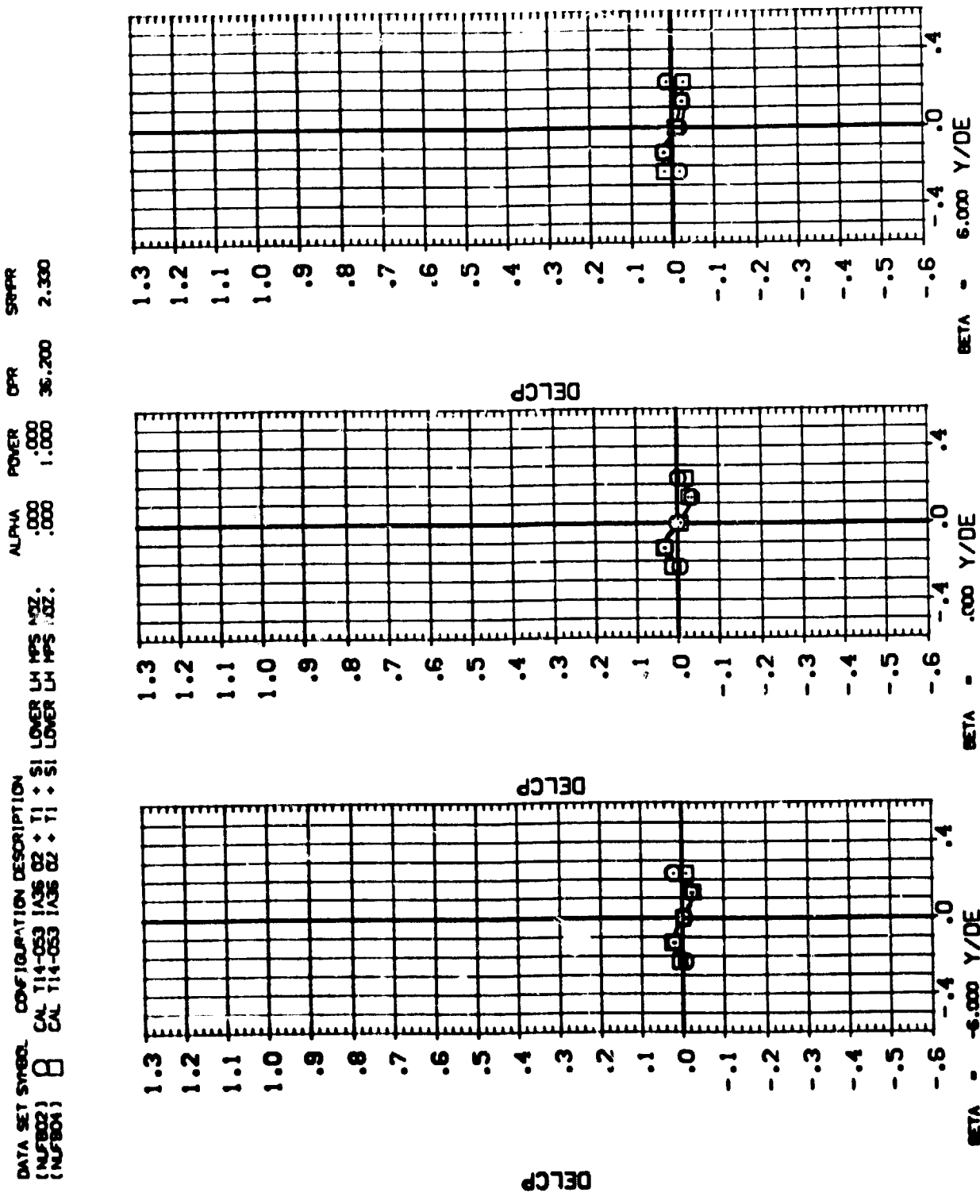
CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 \* T1 \* S1 LOWER LH MPS NOZ.  
 CAL T14-053 IAS 02 \* T1 \* S1 LOWER LH MPS NOZ.

ALPHA POWER DPR SPRR  
 .000 .000 36.200 2.330



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE  
 MACH = .900 X/DE = .754

DATA SET SYMBOL: CAL T14-053 (A35 02 + T1 + S1) LOWER LH MPS NOZ.  
 (NLF802) CAL T14-053 (A35 02 + T1 + S1) LOWER LH MPS NOZ.  
 (NLF804)

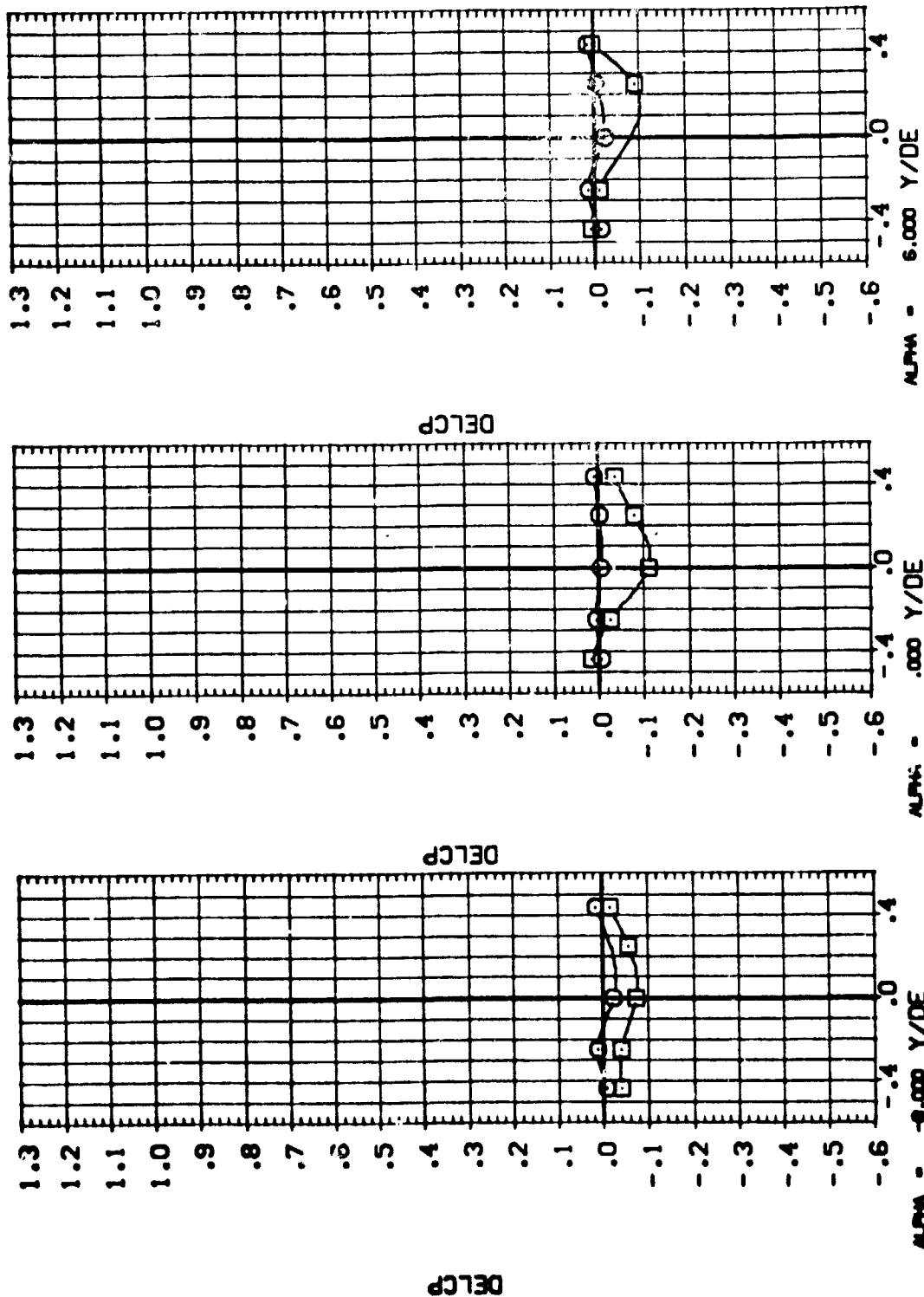


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL: 0  
 (NUMBER) (NUMBER)  
 CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:  
 BETA: .000  
 POWER: .000  
 C/P: 28.310  
 S/P: 2.020



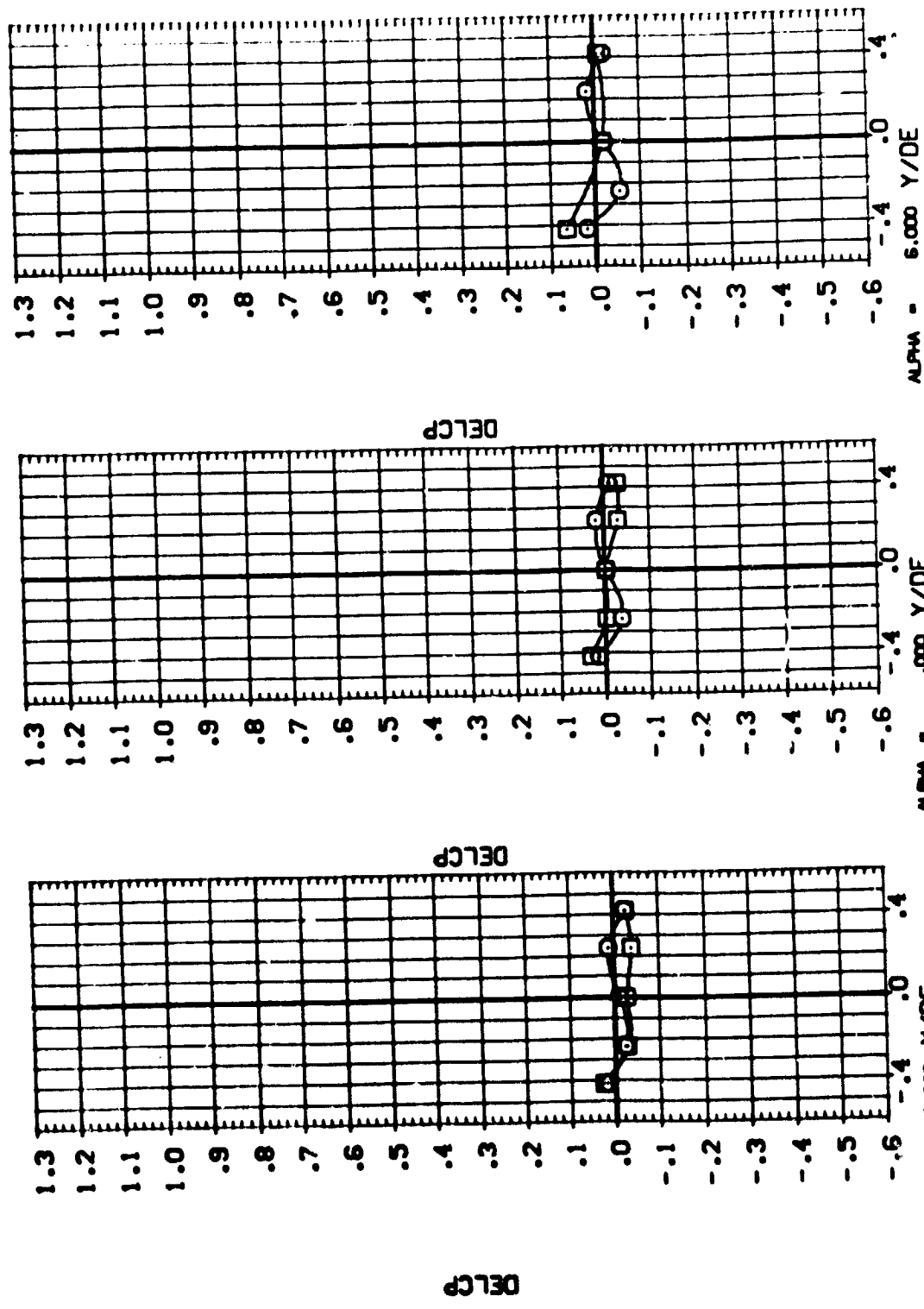
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.; CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.

BETA: .000 POWER: .000 SRRR: 2.020

OPR: 28.310

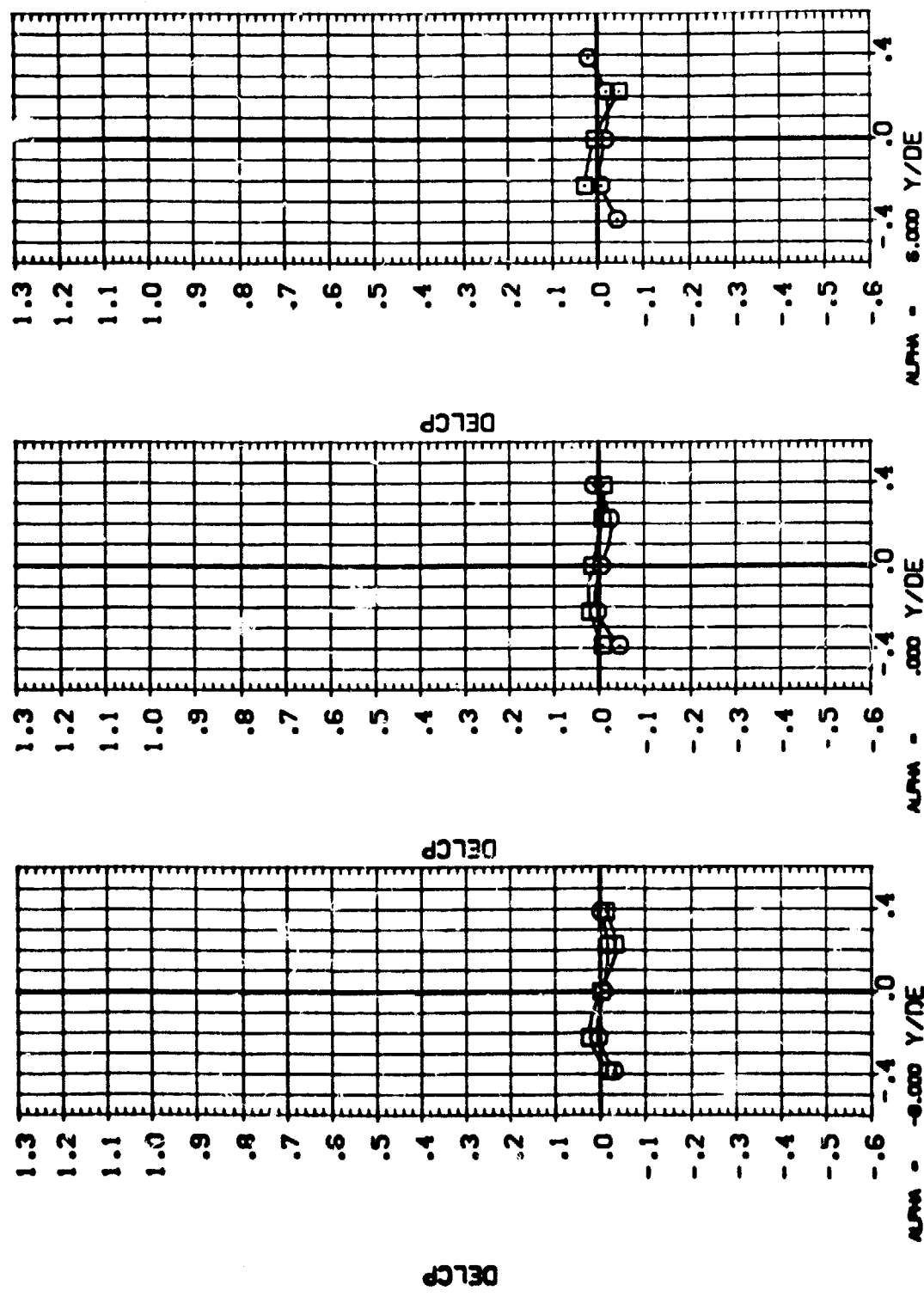


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMBOL: CAL 114-053 [A35 02 : T1 : S1] LOWER LH MPS NOZ:  
 (NUMBER) [NUMBER] CAL 114-053 [A35 02 : T1 : S1] LOWER LH MPS NOZ:  
 BETA POWER CPM SPWR

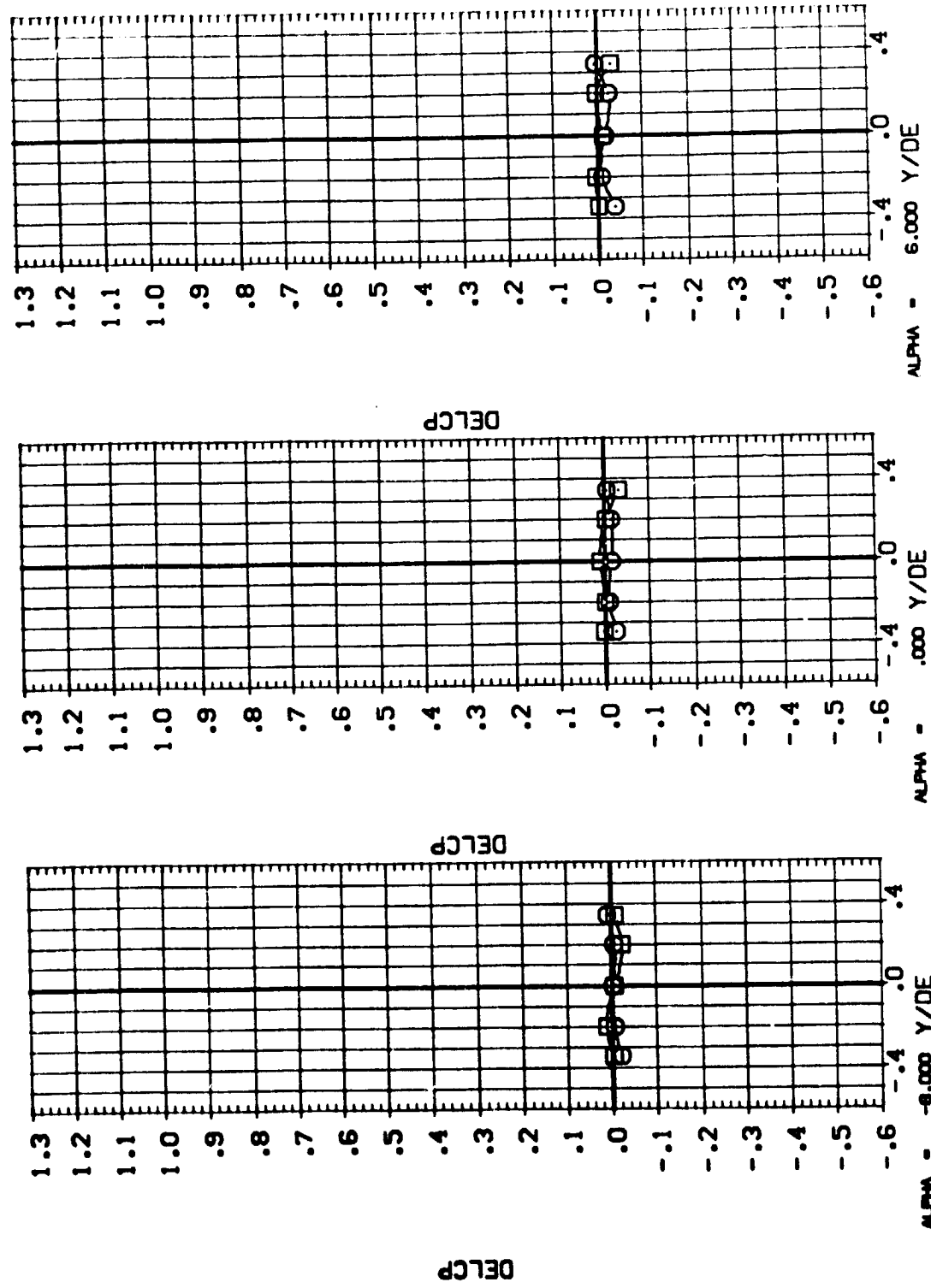


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .406

C-7

DATA SET SYMBOL: [NUFB05] [NUFB07] CONFIGURATION DESCRIPTION: CAL 114-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ: CAL 114-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ: BETA: .000 POWER: .000 C<sub>TR</sub>: 28.310 SHPR: 2.020



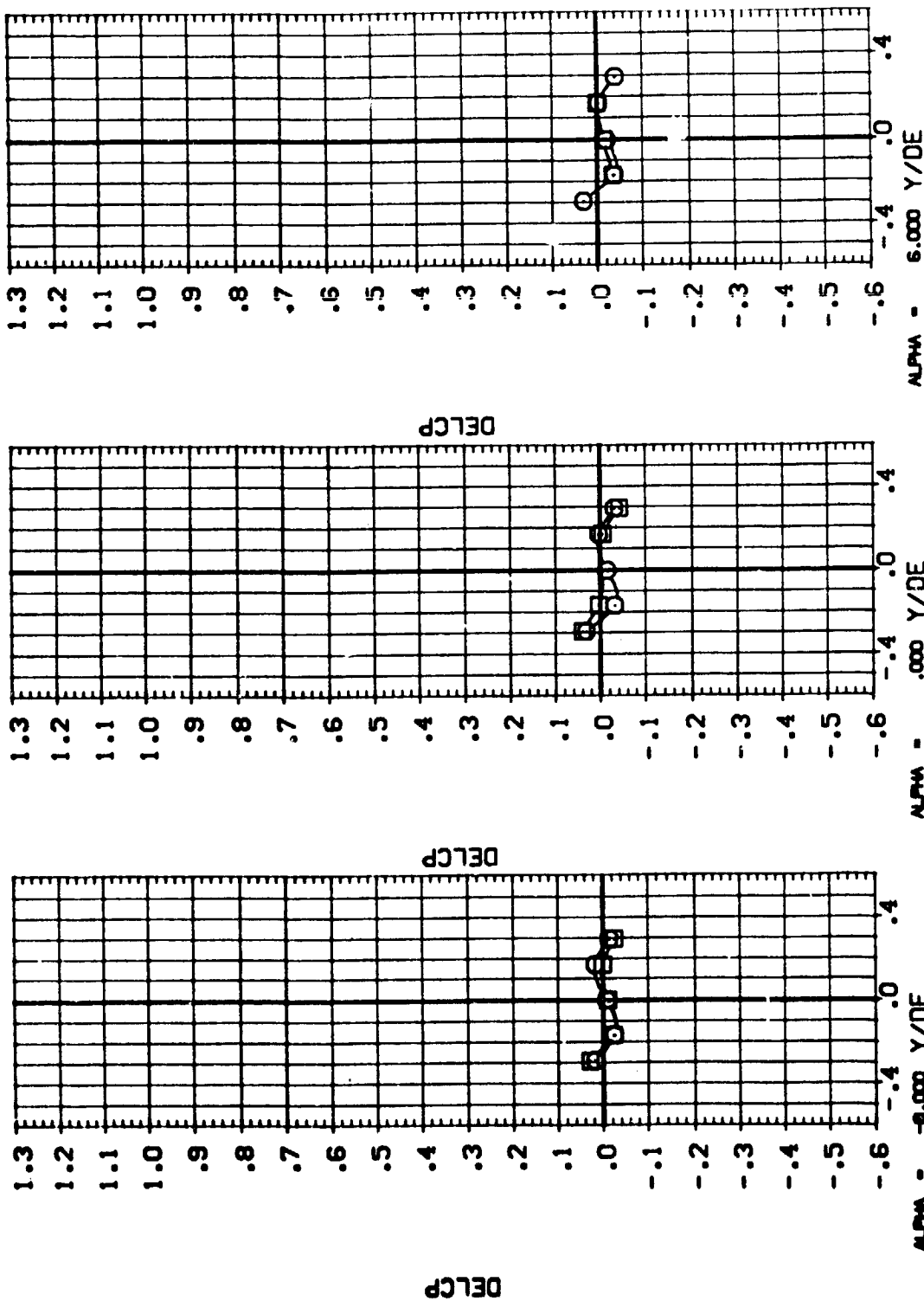
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .580





DATA SET SYMBOL: (NLF805) (NLF807) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ. CAL T14-053 IAS6 02 + T1 + S1 LOWER LH MPS NOZ. BETA: .000 .000 POWER: .000 1.000 DFR: 26.310 SPPR: 2.020

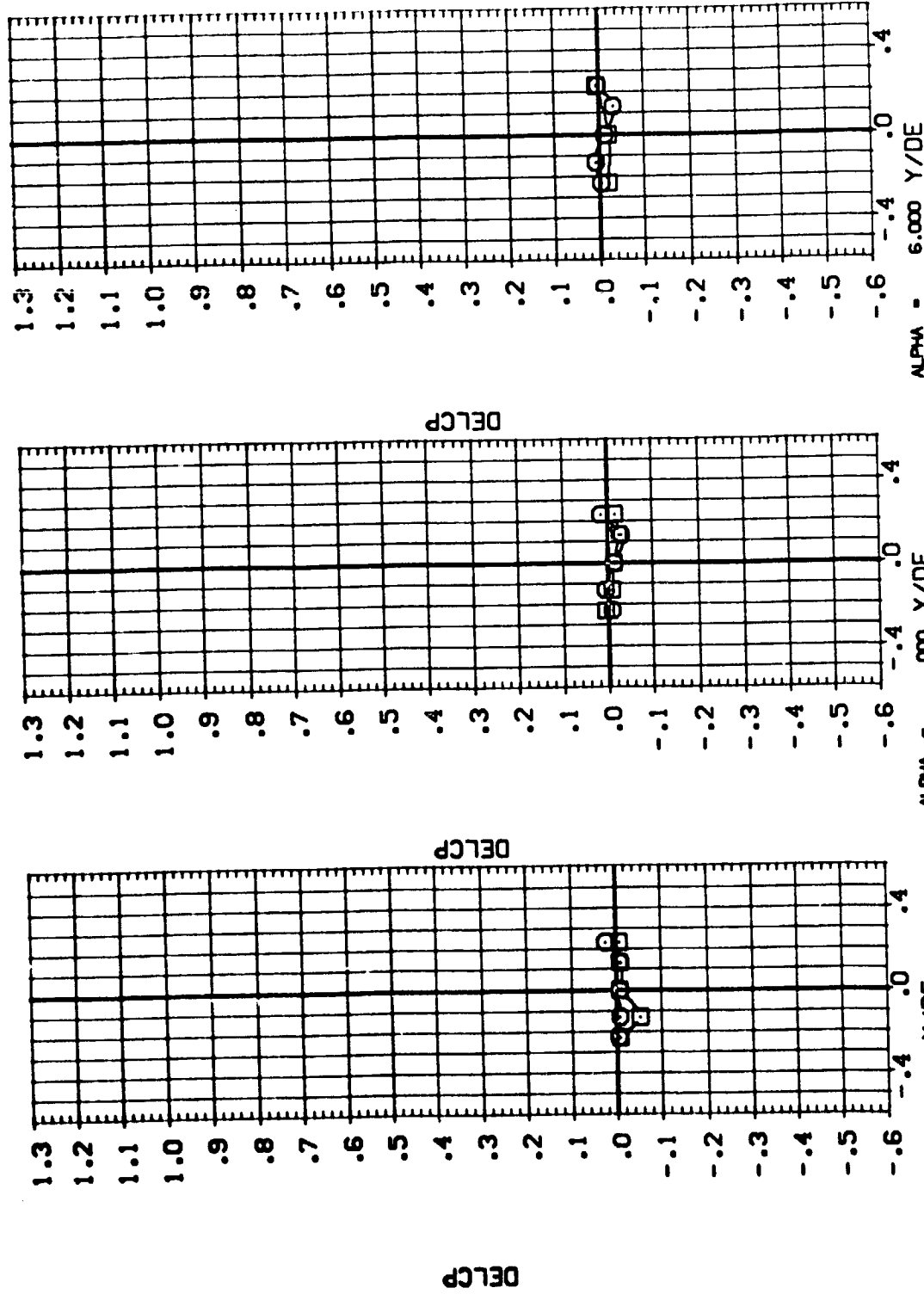


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .754

DATA SET SYMBOL. CONFIGURATION DESCRIPTION  
 (NUPB05) CAL T14-053 IAS6 Q2 : T1 : S1 LOWER LH MPS NOZ:  
 (NUPB07) CAL T14-053 IAS6 Q2 : T1 : S1 LOWER LH MPS NOZ:

BETA POWER DPR SRPR  
 :000 :000 28.310 2.020

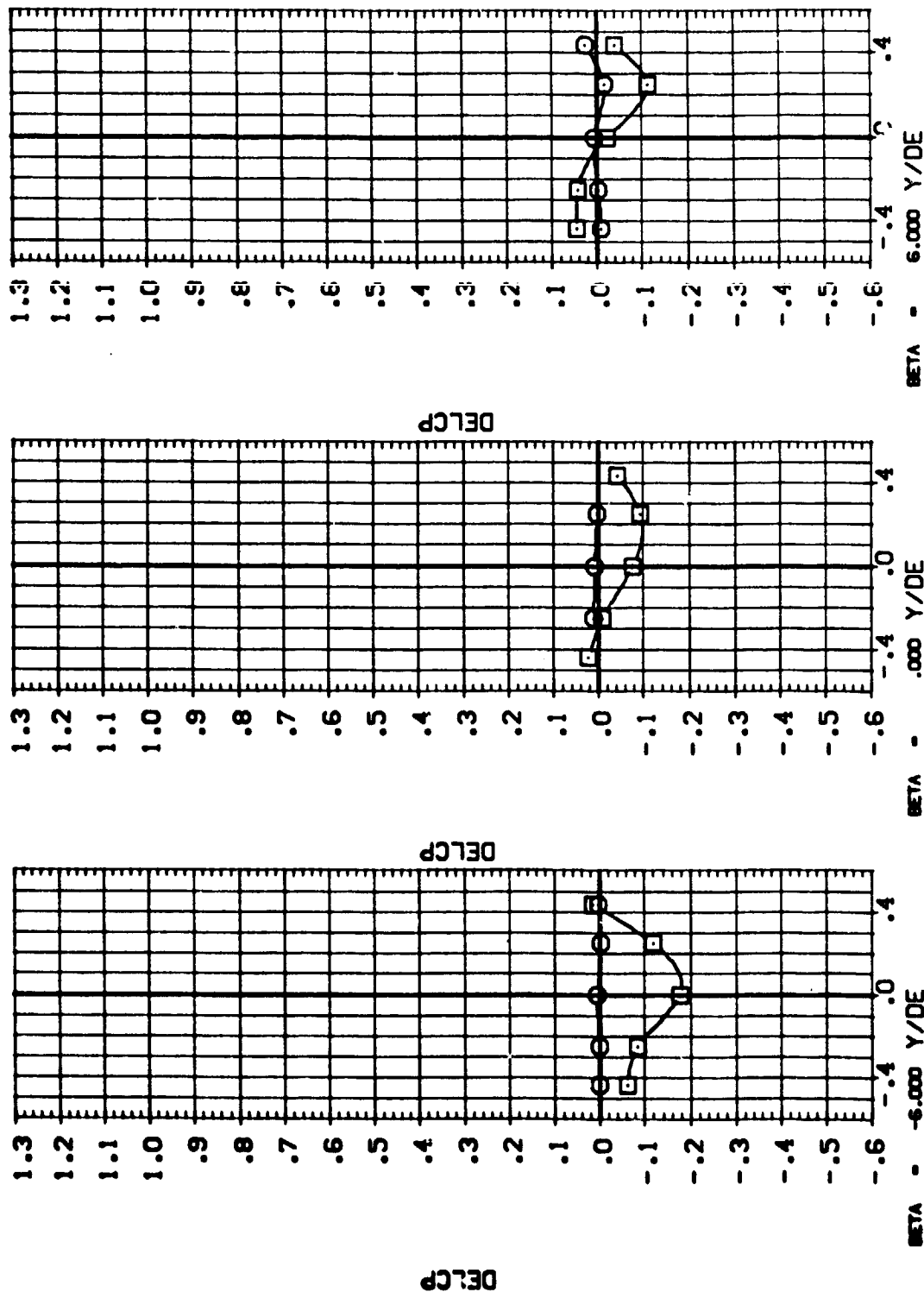


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .928



DATA SET SYMBOL: 8  
 (NUMBERS) (NUMBERS)  
 CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ:  
 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ:  
 ALPHA POWER CTR SHFT  
 .000 .000 28.310 2.000  
 .000 1.000



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: CAL 114-053 1A36 02 \* T1 \* S1 LOWER LH MPS NOZ.  
 (NUPB05) CAL 114-053 1A36 02 \* T1 \* S1 LOWER LH MPS NOZ.  
 (NUPB08)

SRPR

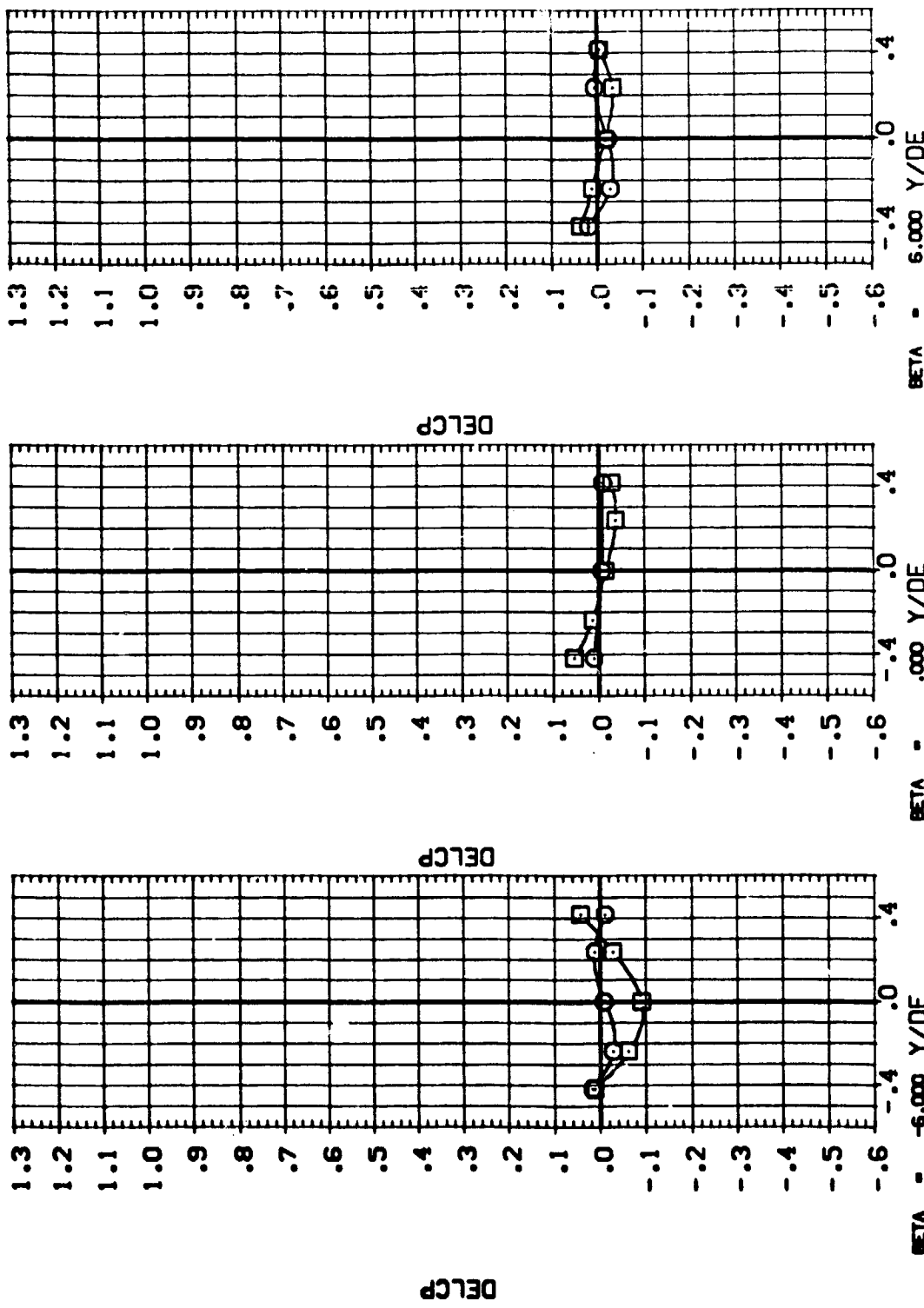
OPR

POWER

ALPHA

1.000  
1.000

28.310  
2.000



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .232



00000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(NUMBER)

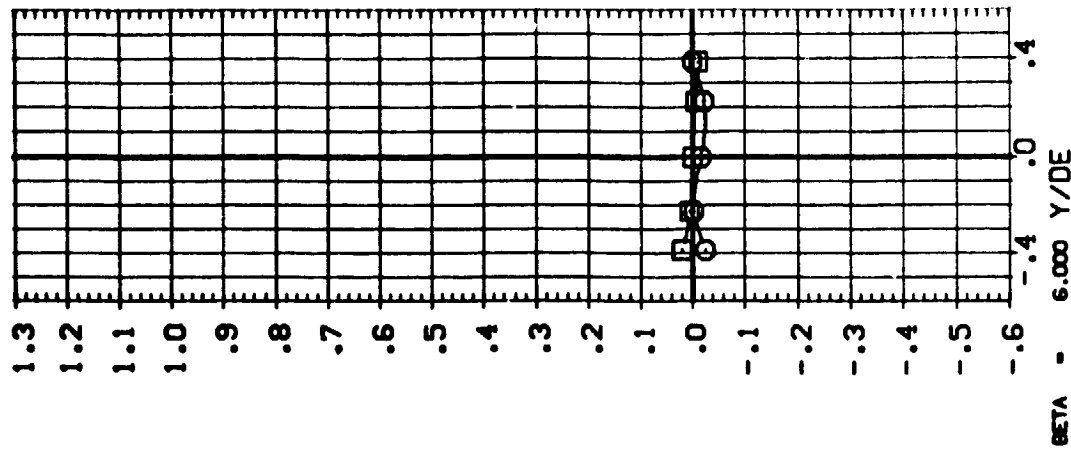
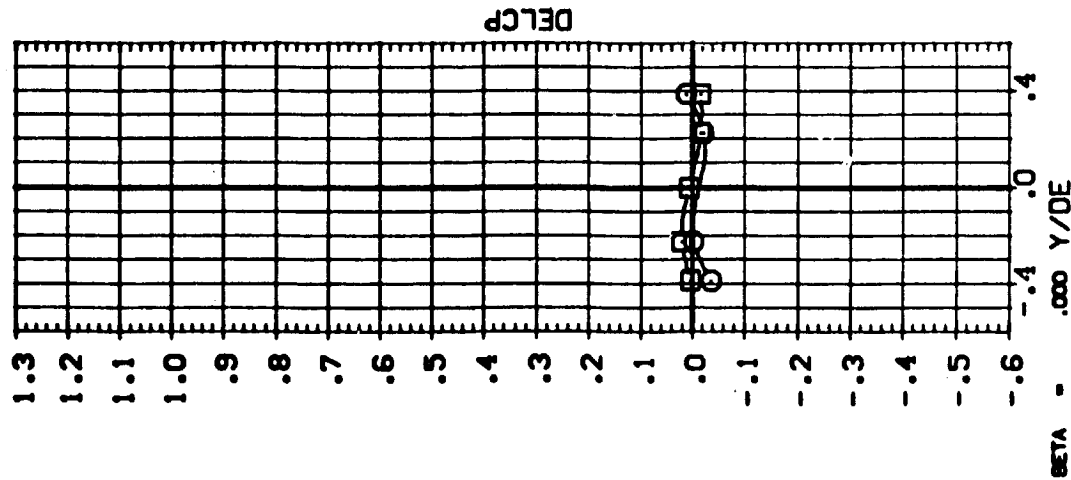
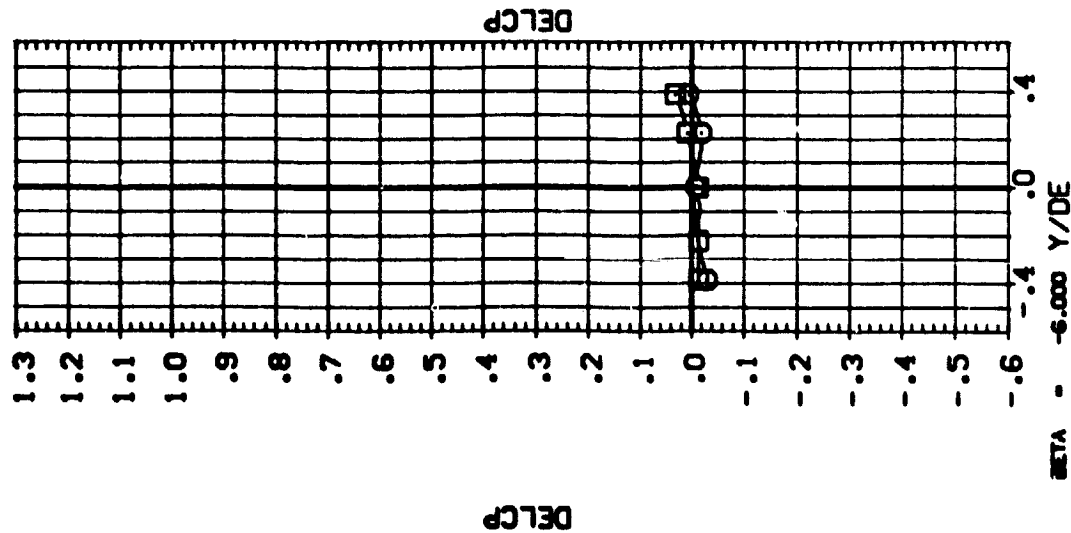
CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:

ALPHA POWER CPR SHPR

.000 1.000 28.310 2.020

(NUMBER)

CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:

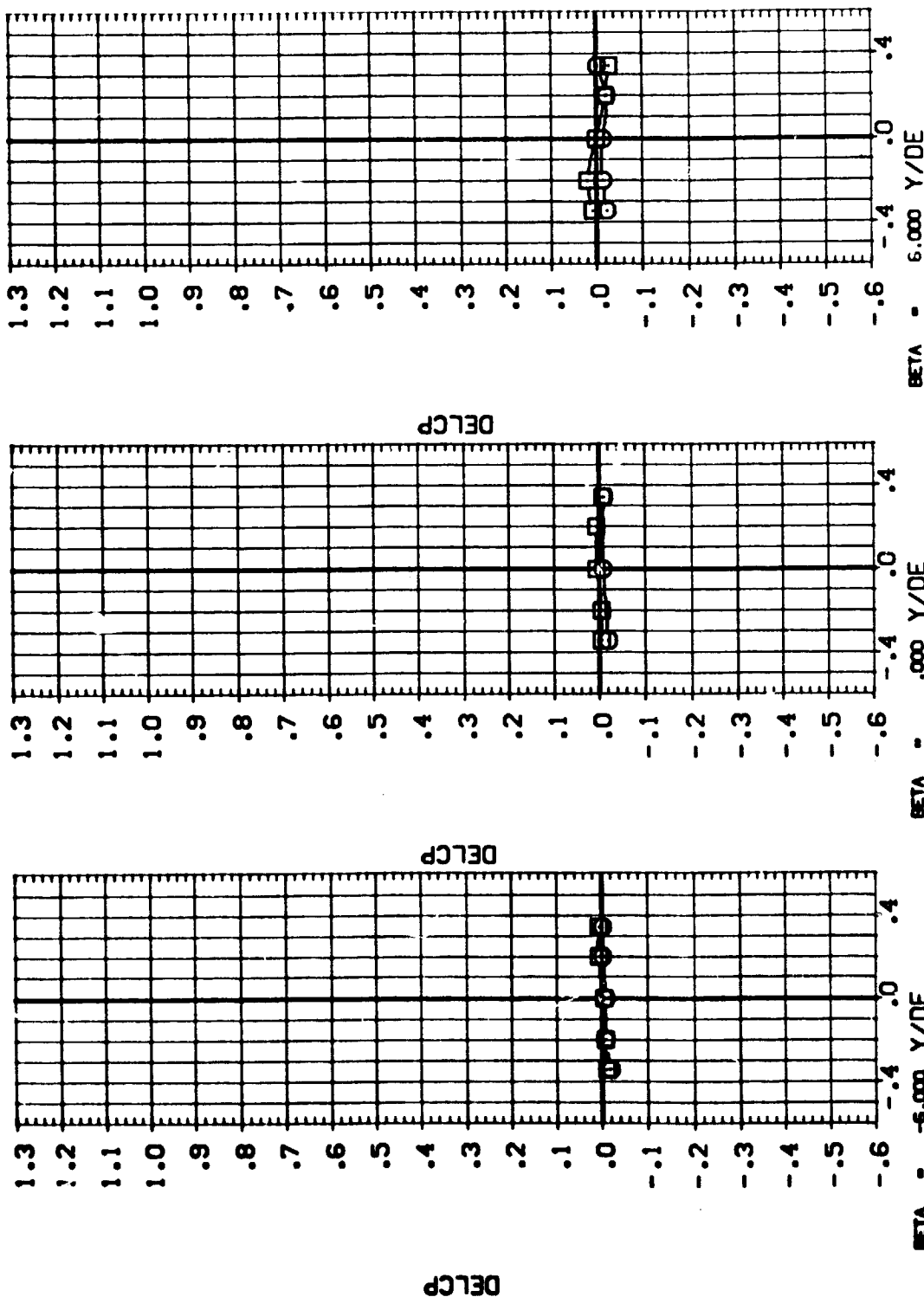


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: (NLF808) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (NLF808) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.

CONFIGURATION DESCRIPTION: ALPHA POWER DPR SRPR  
 .000 .000 28.310 2.020



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .580



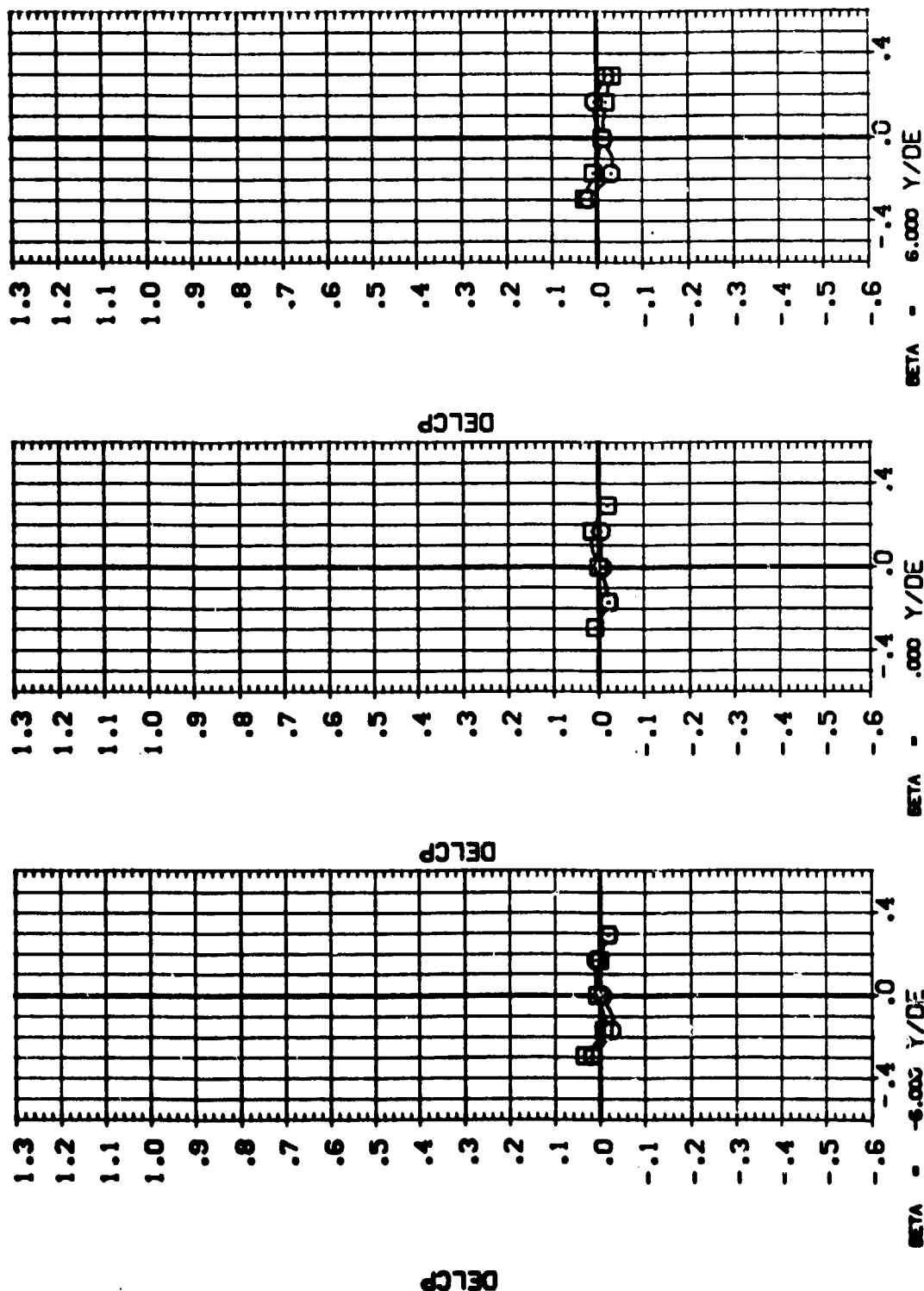
14-00000

DATA SET SYMBOL. CONFIGURATION DESCRIPTION

(MURFES)

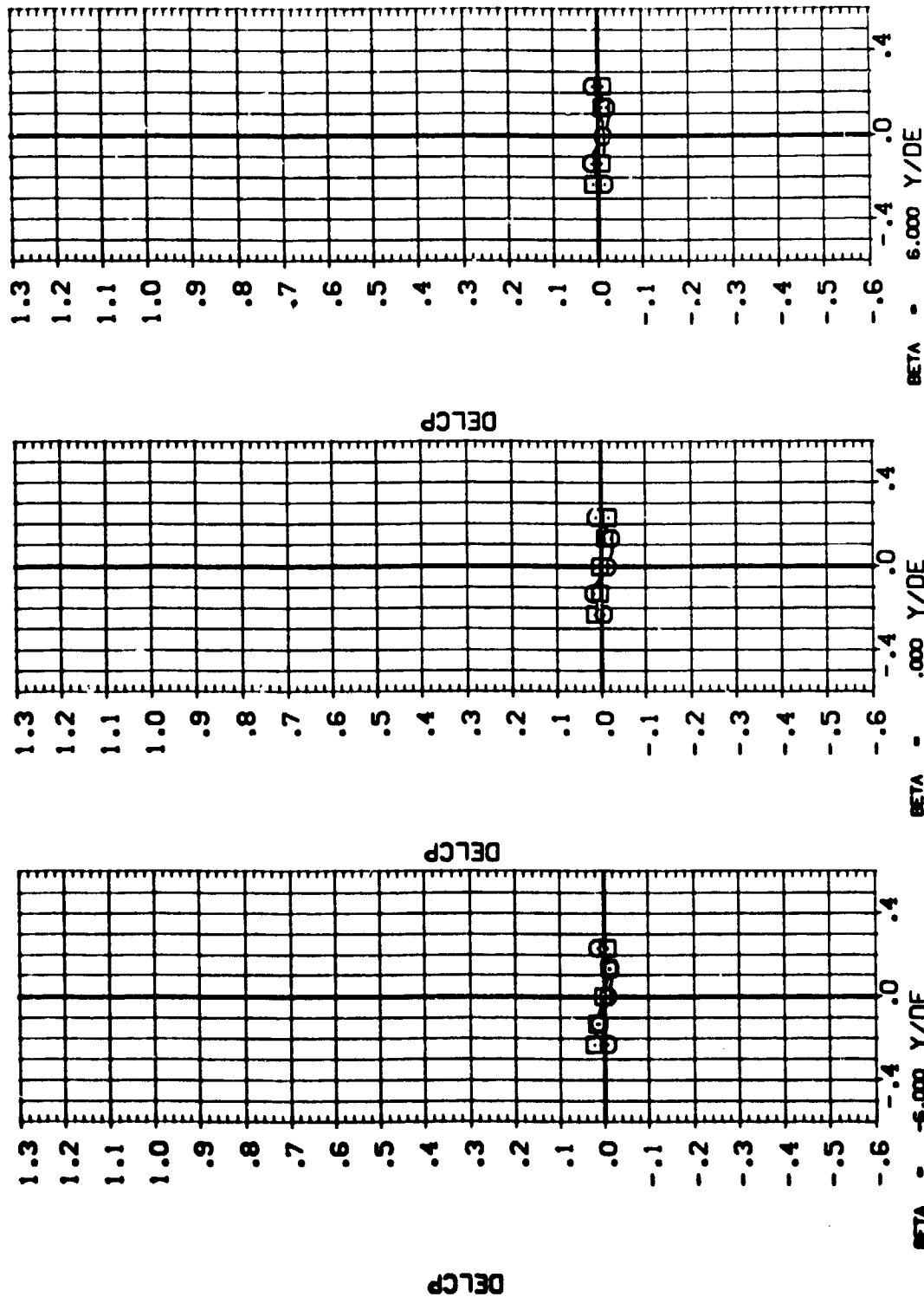
8 CAL 114-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ :

ALPHA POWER CPR SWEPT  
.000 .000 28.310 2.020



DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (NUMBOS) 0 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 ALPHA POWER DPR SRPR  
 .000 .000 28.310 2.000

# CONFIGURATION DESCRIPTION



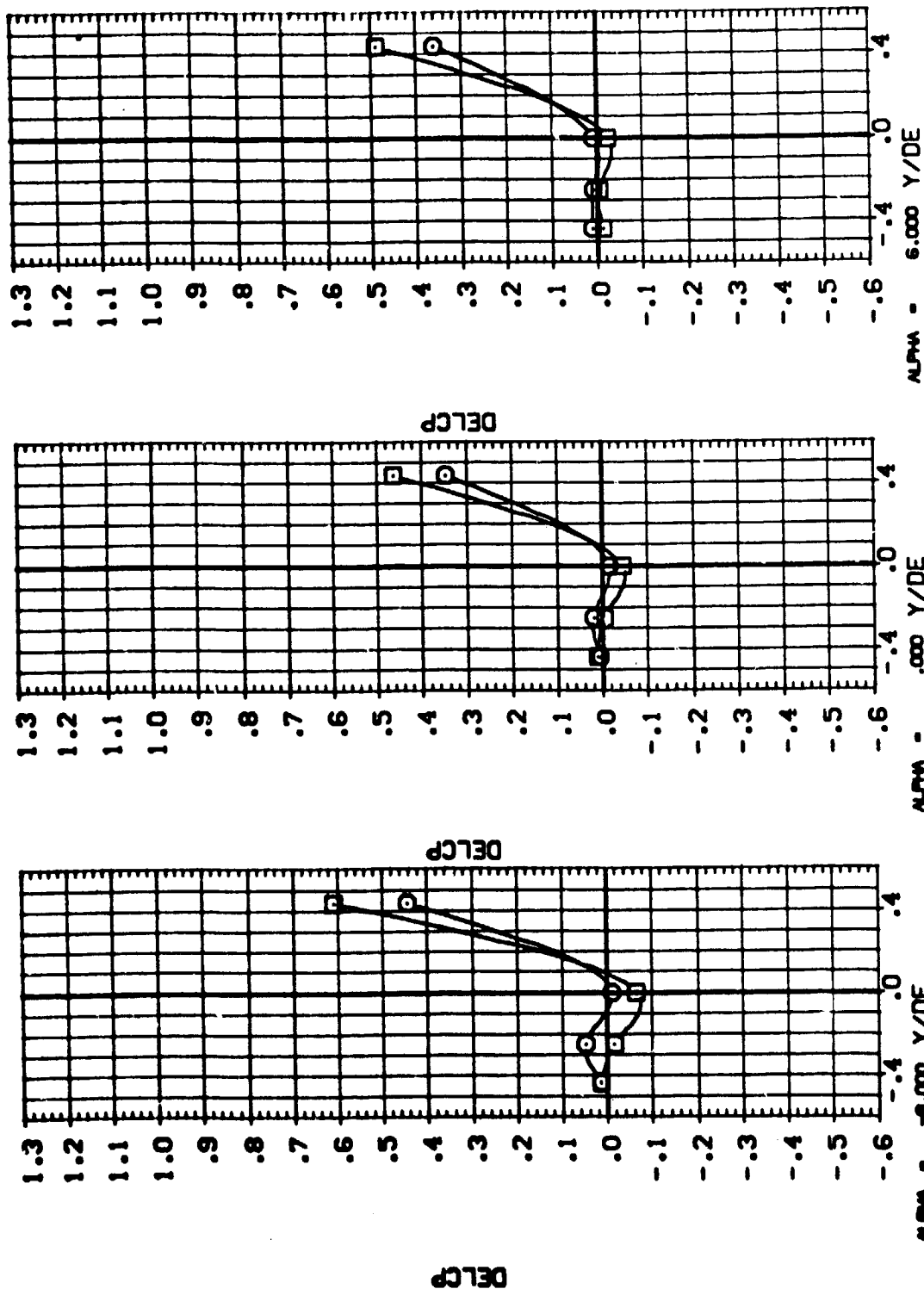
## DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .928





DATA SET SYMB. CONFIGURATION DESCRIPTION: BETA POWER CTR SWPR  
 {NUP001} 8 CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: .000 .000 36.200 2.300  
 {NUP002} 8 CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: .000 1.000

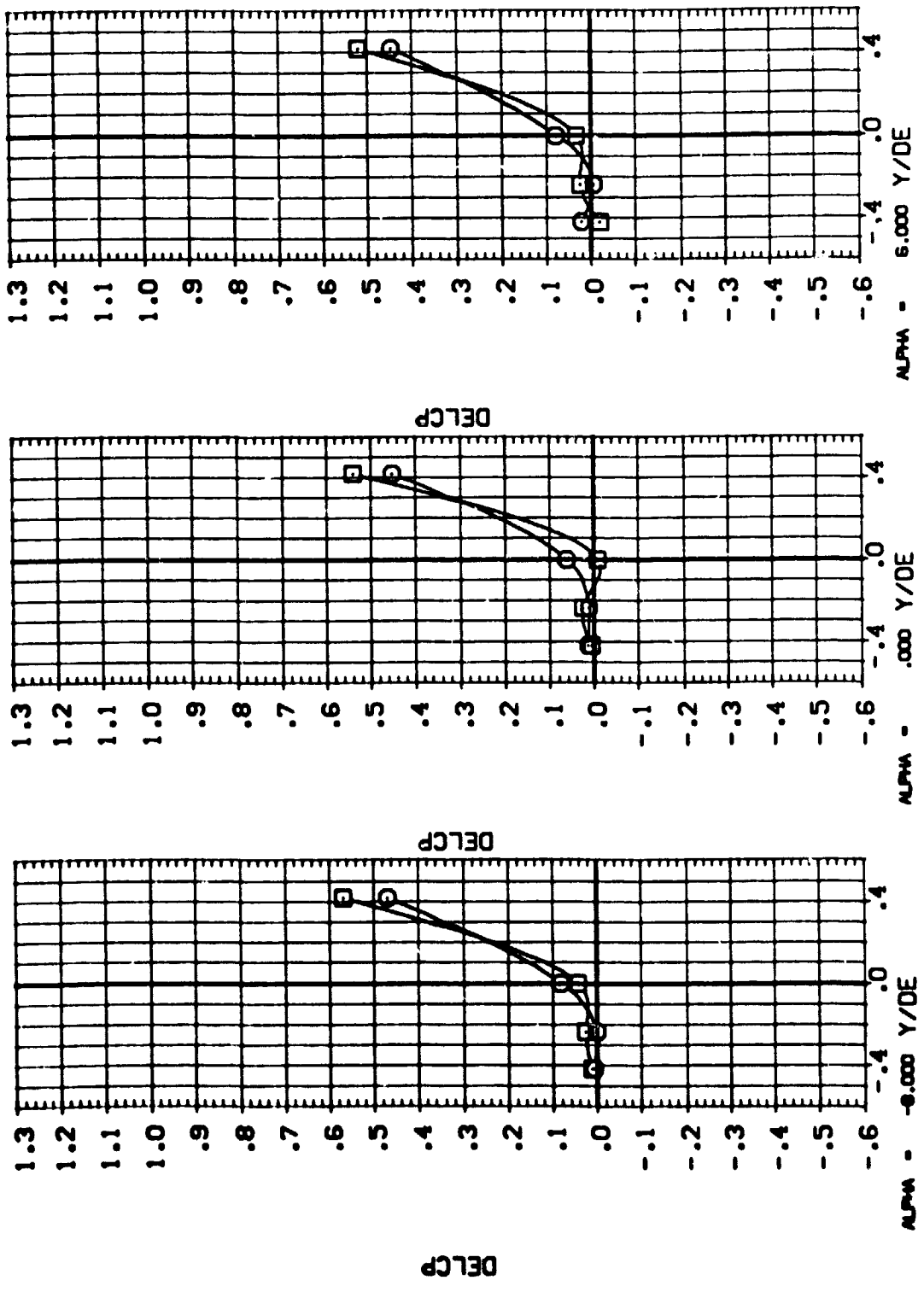


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: 8  
 (NUP001) CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (NUP003) CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.

BETA: .000  
 POWER: .000  
 OFR: 36.200  
 SPRR: 2.330

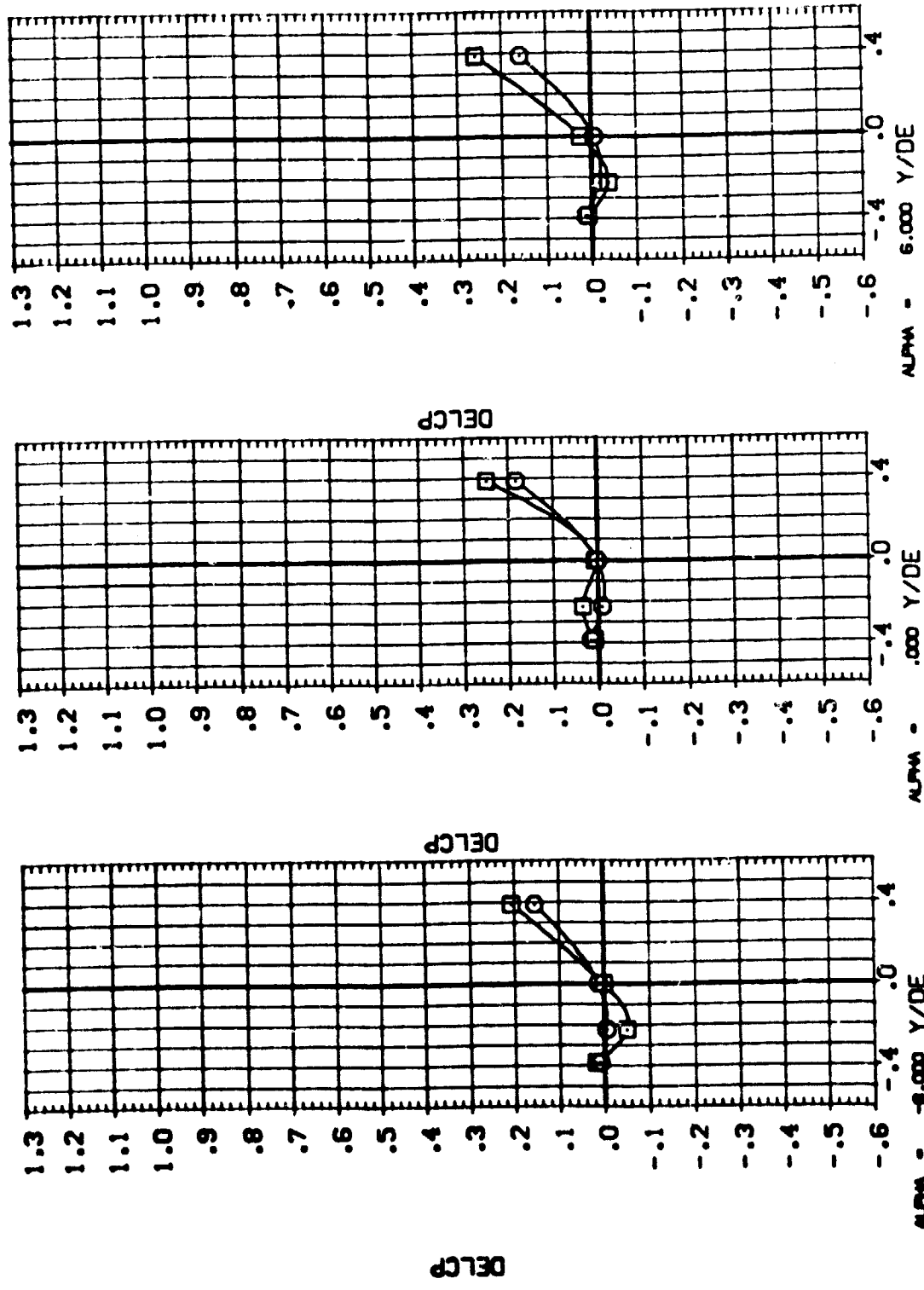


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .232




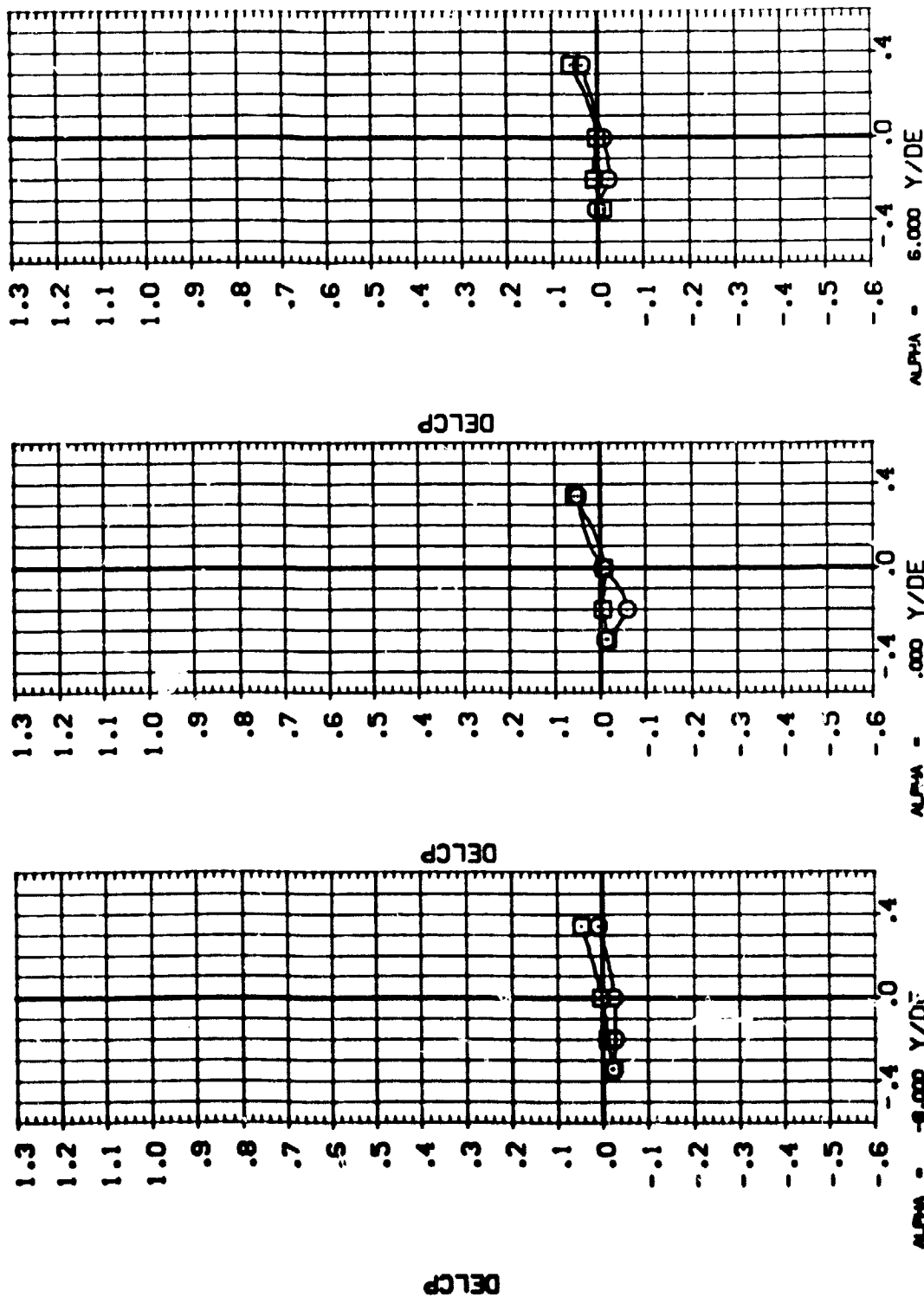
DATA SET SYMBOL: B  
 (MUS001)  
 (MUS003)  
 CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 ÷ T1 ÷ S1 LOWER RH MPS NOZ:  
 CAL T14-053 IAS 02 ÷ T1 ÷ S1 LOWER RH MPS NOZ:  
 BETA: .000  
 POWER: .000  
 CPR: 36.200  
 SNRPR: 2.300



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: (M/F001)  CONFIGURATION DESCRIPTION: CAL T14-053 I/AS B2 : T1 : S1 LOWER RH MPS NOZ. : BETA .000 POWER 1.000 DFR 36.200 SFR 2.730

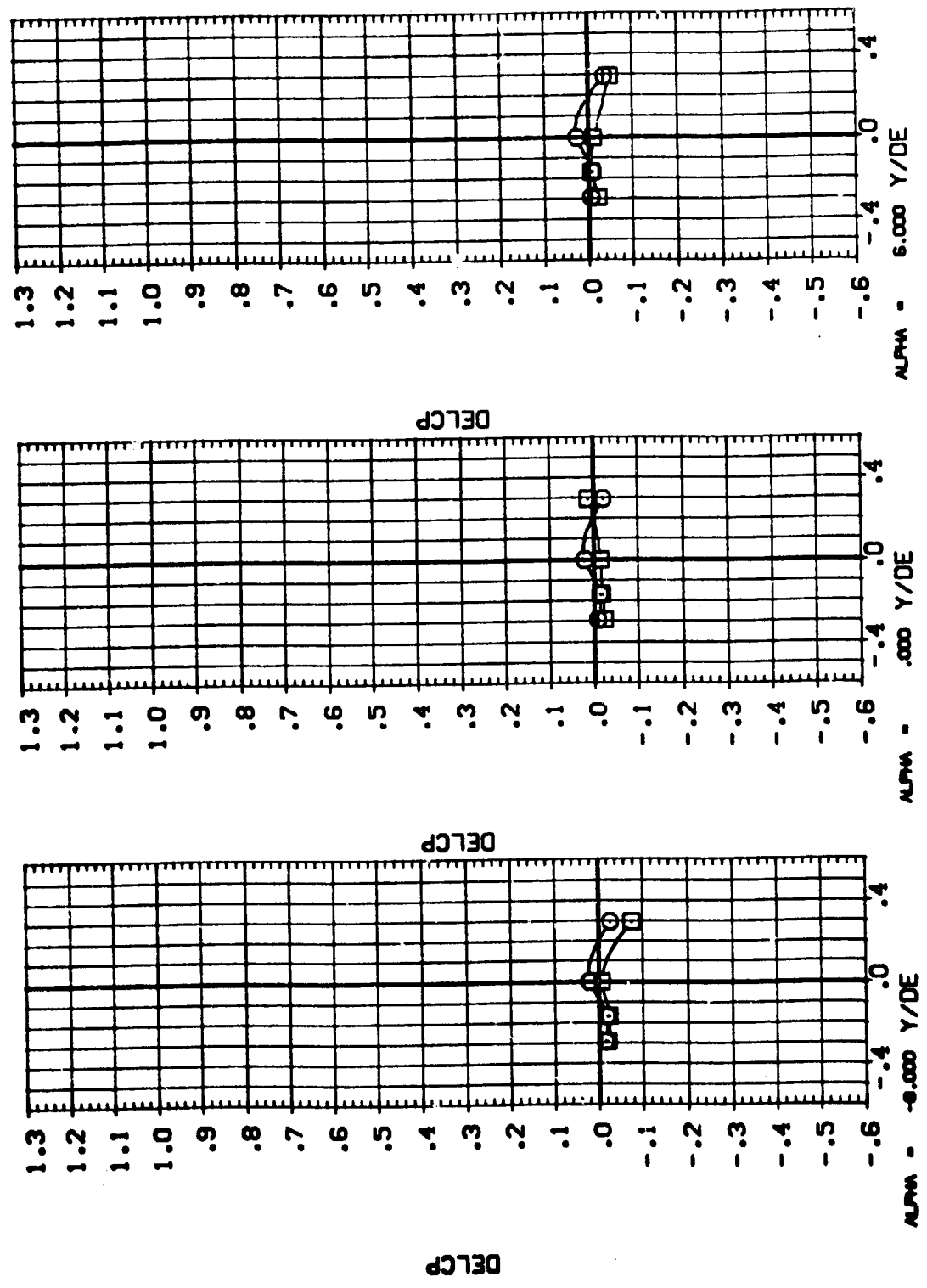


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .580




DATA SET SYMBOL: (NUP001) (NUP003) ☐ CONFIGURATION DESCRIPTION: CAL 114-053 1A36 02 + 11 + S1 LOWER RH MPS NOZ: CAL 114-053 1A36 02 + 11 + S1 LOWER RH MPS NOZ: BETA: .000 .000 POWER: .000 1.000 GPR: .000 36.200 SQRPR: 2.330



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .754

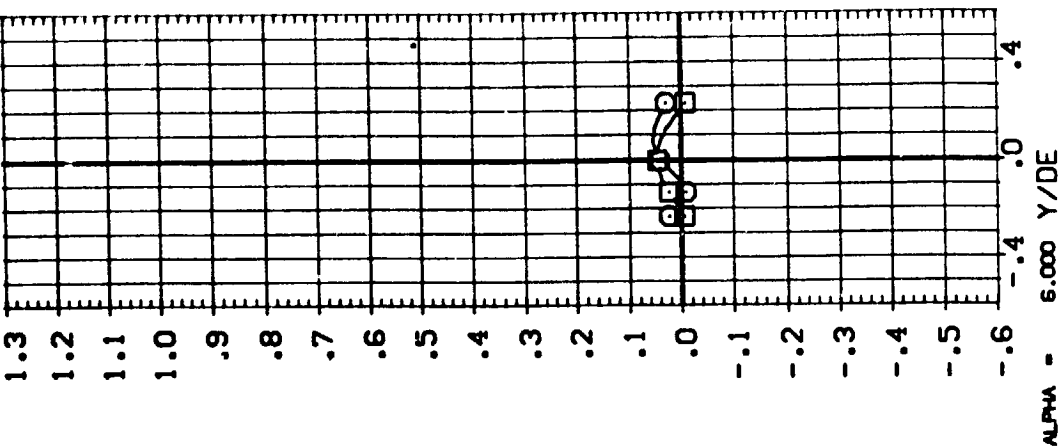
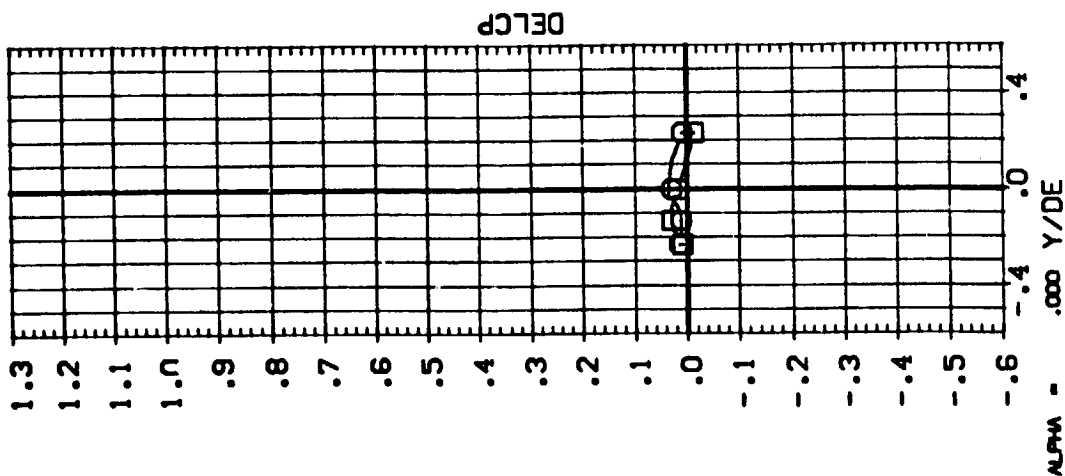
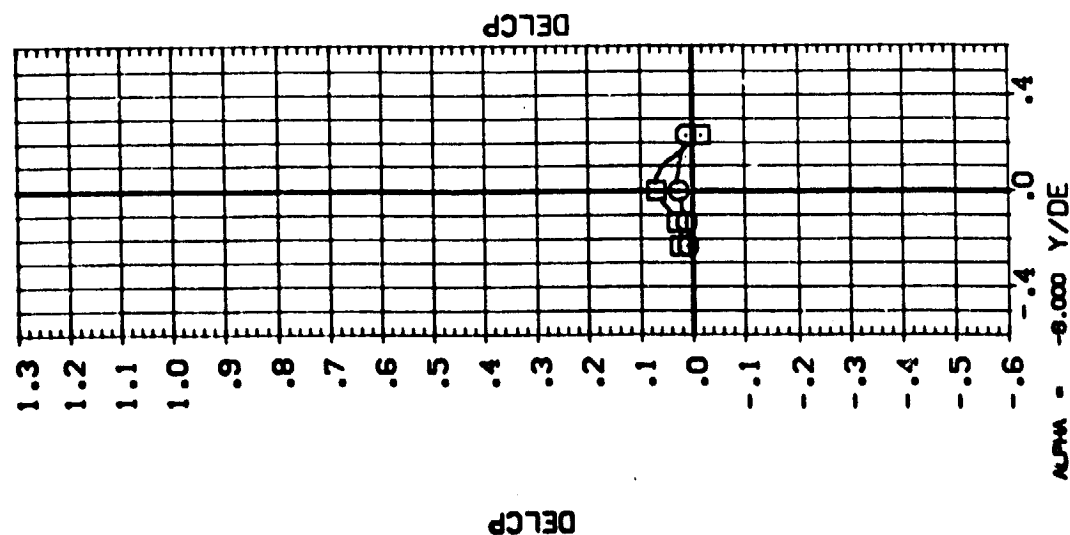
DATA SET SYMBOL: (NUFC01) (NUFC03)  CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.; CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.

BETA: .000 .000

POWER: .000 1.000

OPR: 36.200

SWPR: 2.330

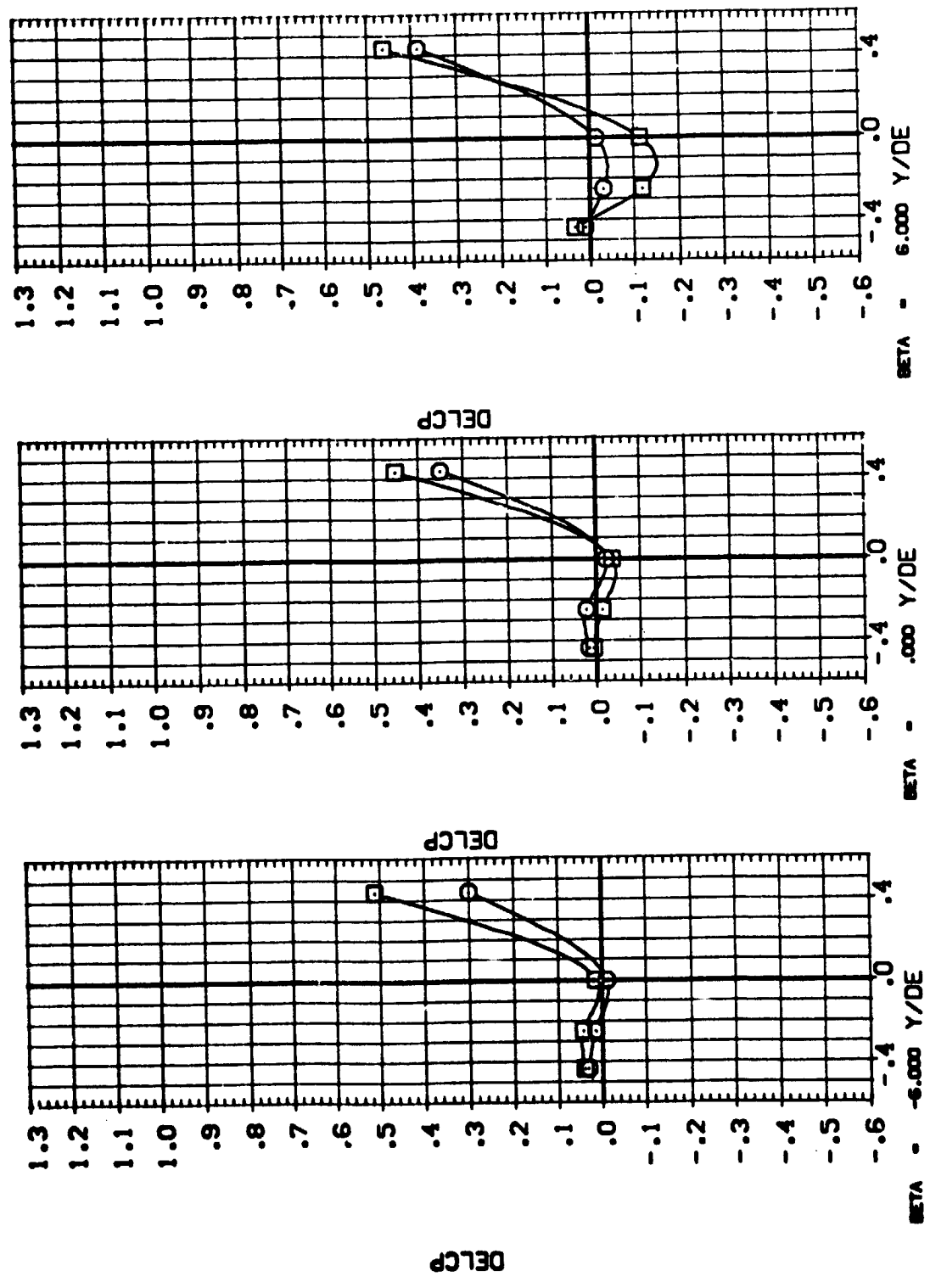


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL: (NLF002) (NLF004)  
CONFIGURATION DESCRIPTION: CAL T14-053 (A36 02 + T1 + S1) LOWER RH MPS NOZ;  
CAL T14-053 (A36 02 + T1 + S1) LOWER RH MPS NOZ;  
ALPHA: .000 .000  
POWER: .000 1.000  
DPR: 36.200  
SWPR: 2.300

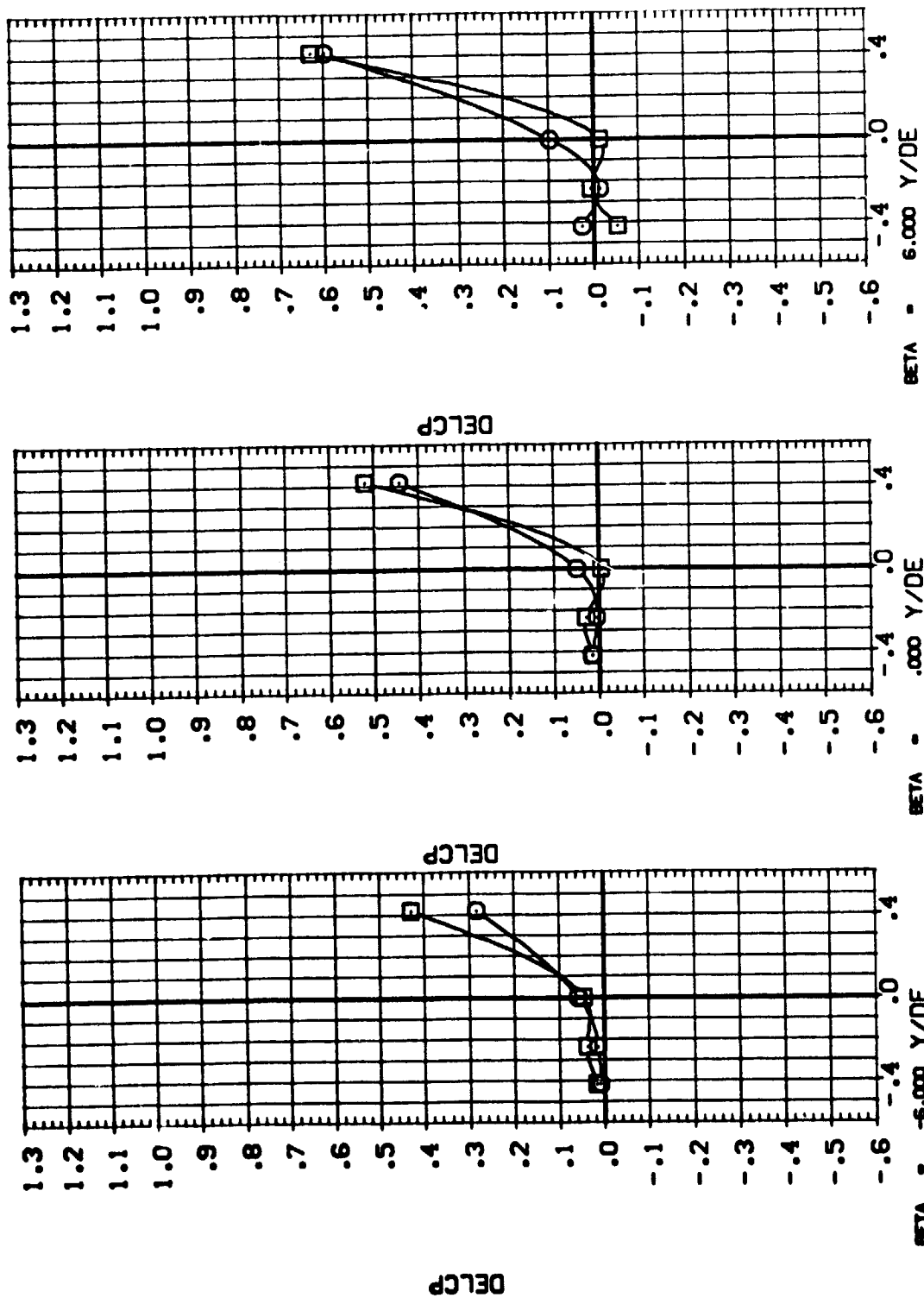


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(NLF002)	CAL T14-053 IAS6 02 + T1 + S
(NLF004)	CAL T14-053 IAS6 02 + T1 + S

ALPHA	POWER	GPR	SWPR
.000	.000	36.200	2.330
.000	1.000		



DELTA PRESSURE DISTRIBUTION. LOWER RH MPS NOZZLE

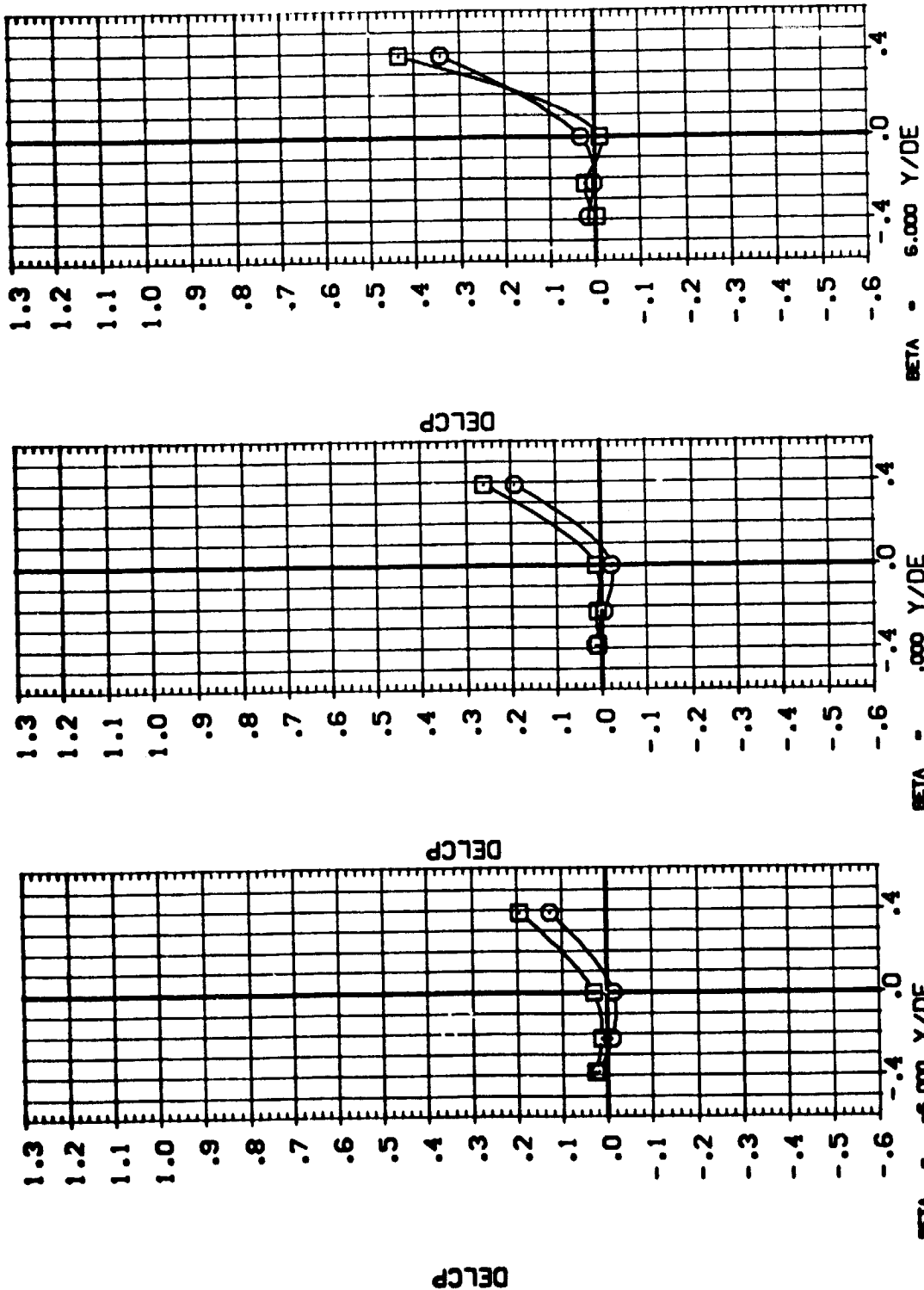
$$\text{MACH} = .900 \quad X/DE = .232$$

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DATA SET SYMBOL: (NUSC02) (NUSC04) **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ. CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ. ALPHA POWER DFR SFR 0.000 1.000 36.200 2.330



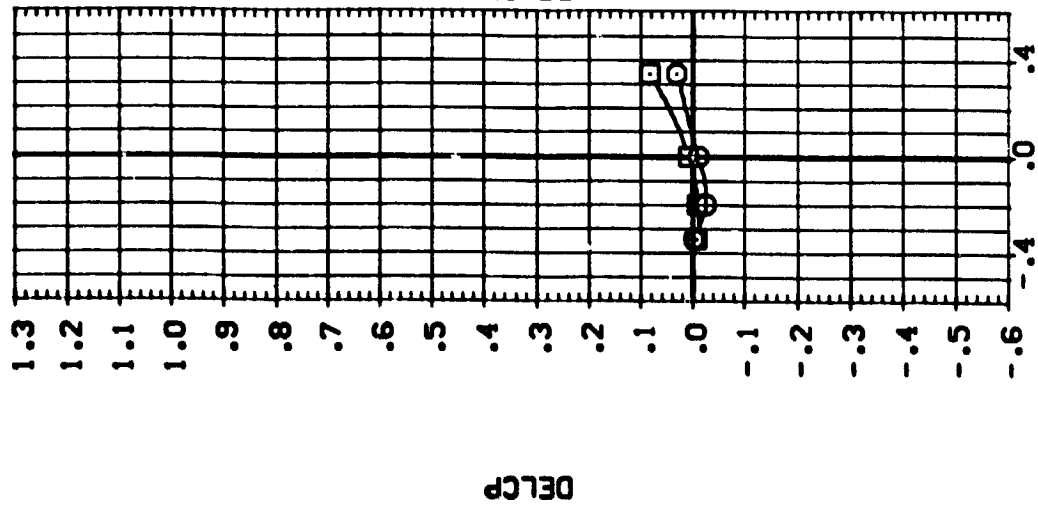
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .406

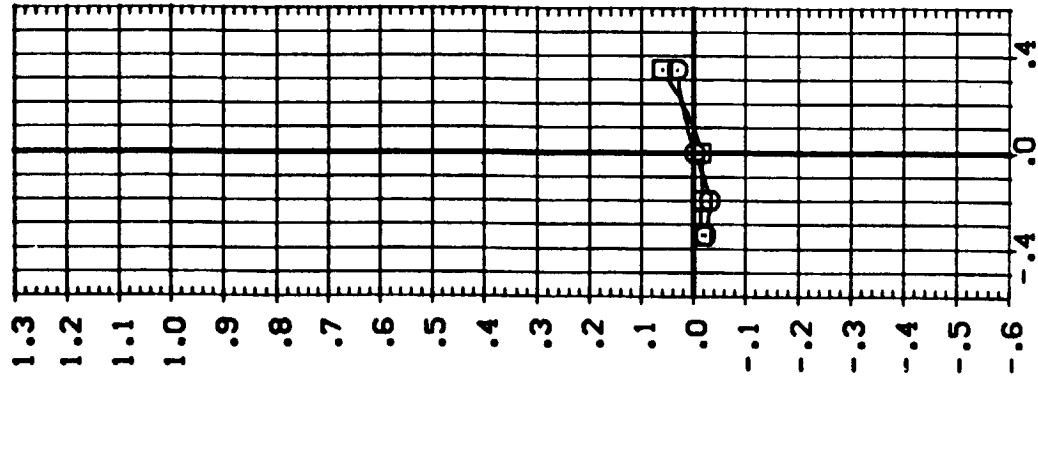
DATA SET SYMBOL: (NUP002)  
 (NUP004)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:  
 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:

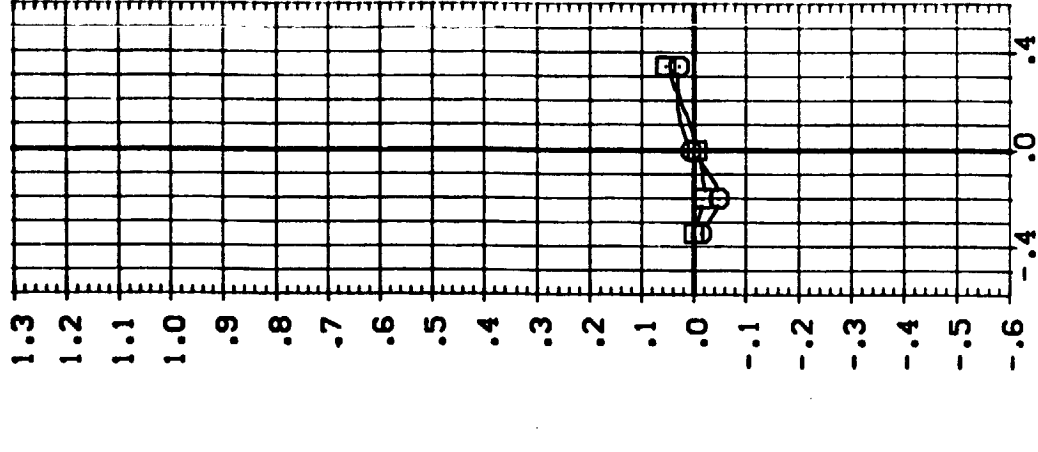
ALPHA: .000  
 POWER: .000  
 CRR: 36.200  
 SRRR: 2.300



BETA -6.000 Y/DE



BETA -0.000 Y/DE



BETA -6.000 Y/DE

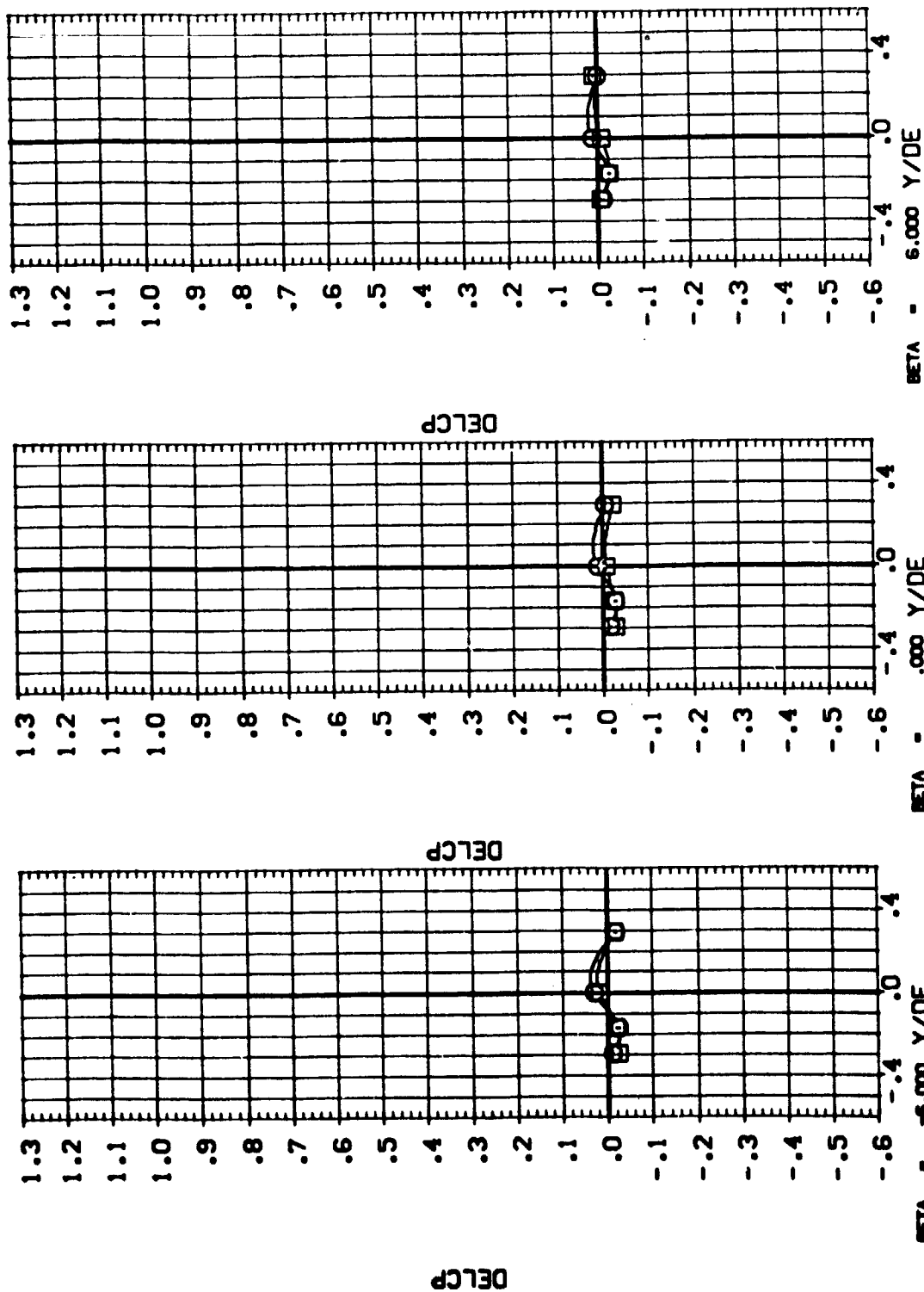
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .580



DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
 (NUP002) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
 (NUP004)

ALPHA: .000  
 POWER: 1.000  
 CPR: 36.200  
 SWPR: 2.330

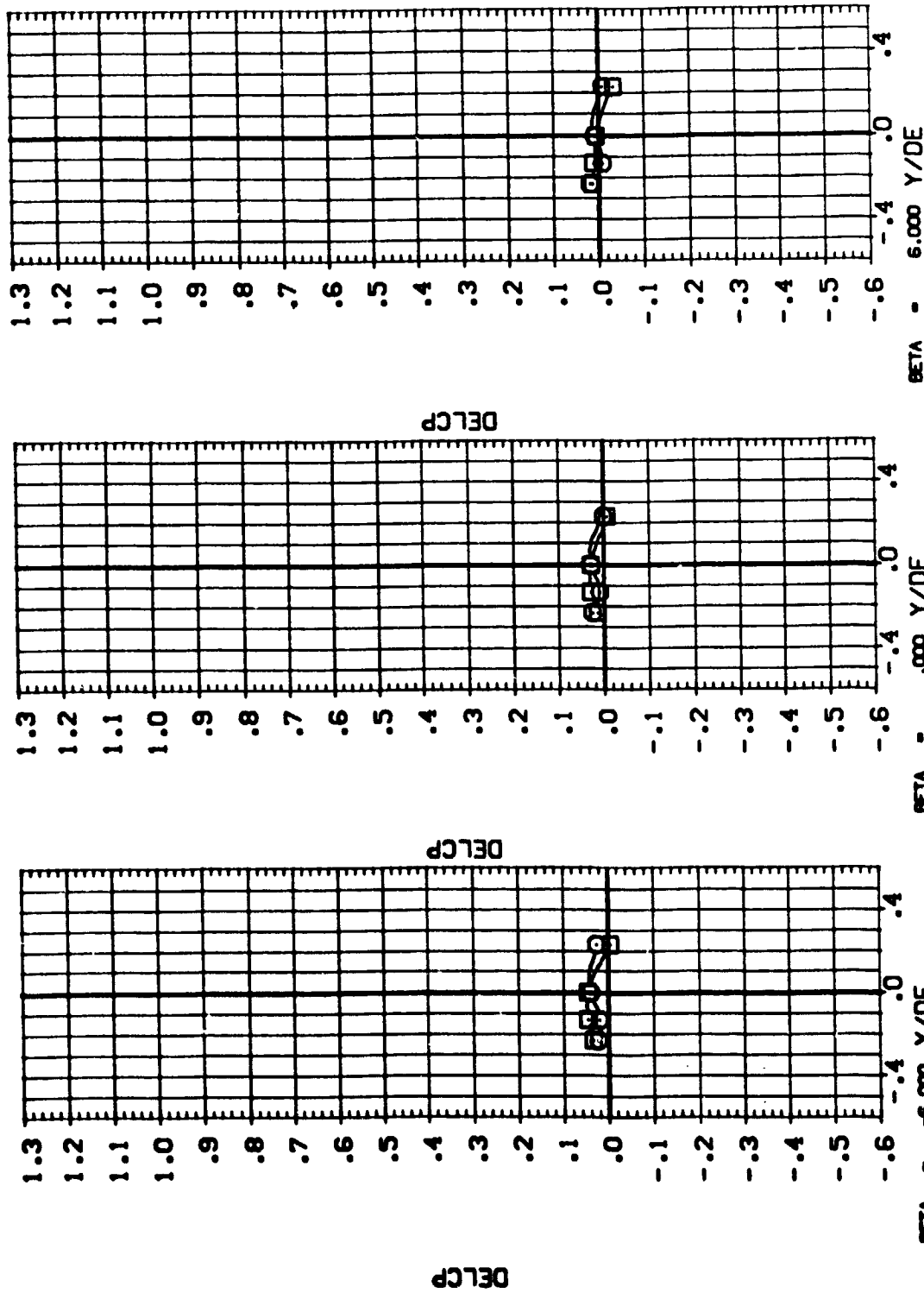


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (NUF002) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.  
 (NUF004) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.

ALPHA POWER DPR SPRR  
 .000 .000 .000 2.300  
 .000 1.000 36.200

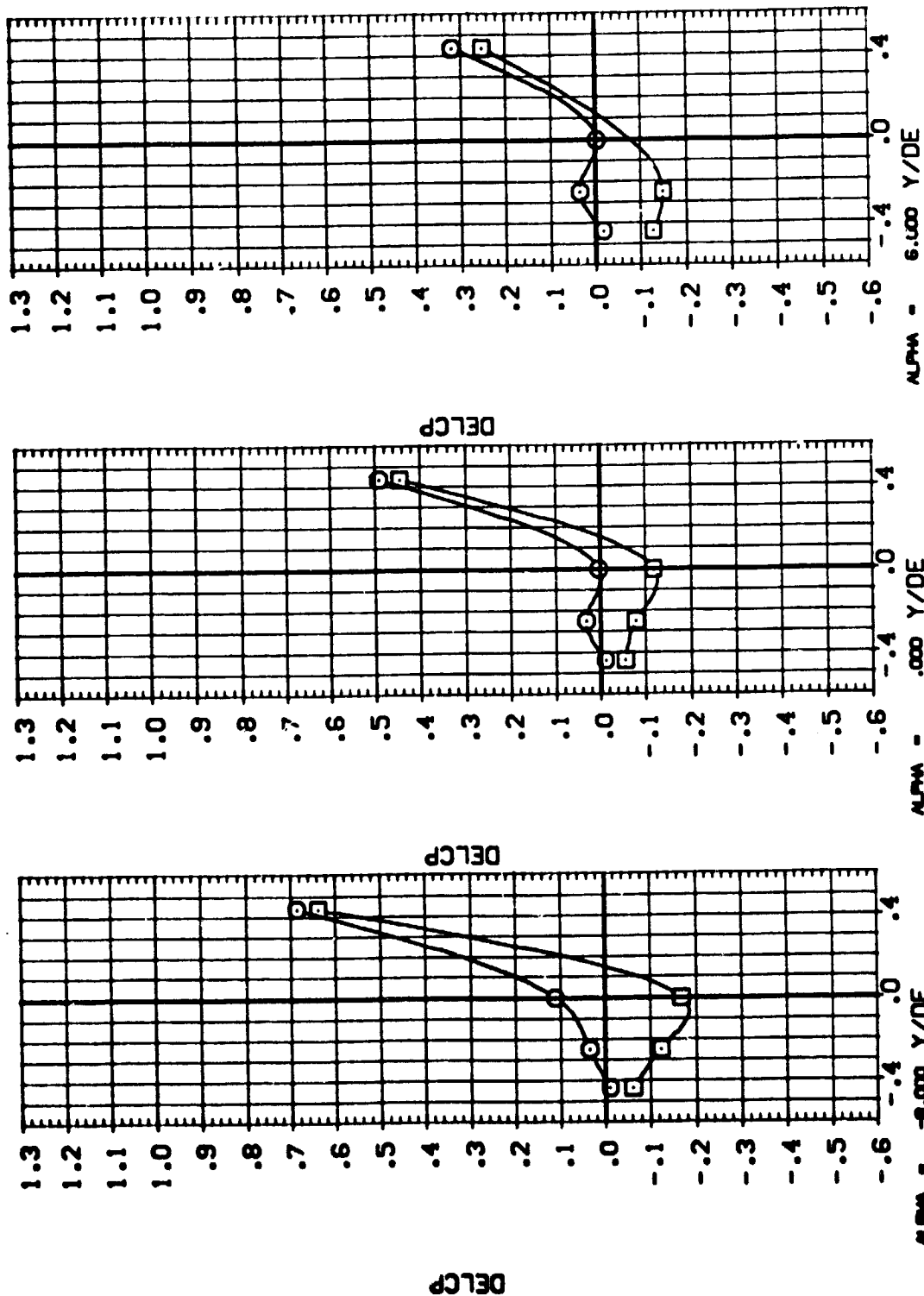


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL: CONFIGURATION DESCRIPTION: POWER: BETA: SPRR:  
(NUP005) CAL 114-053 1A35 02 + 11 + S1 LOWER RH MPS NOZ: .000 28.310 2.020  
(NUP007) CAL 114-053 1A35 02 + 11 + S1 LOWER RH MPS NOZ: .000 1.000



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: **Q** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ.  
 (NUP005) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ.  
 (NUP007)

SRPR

DPR

POWER

BETA

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

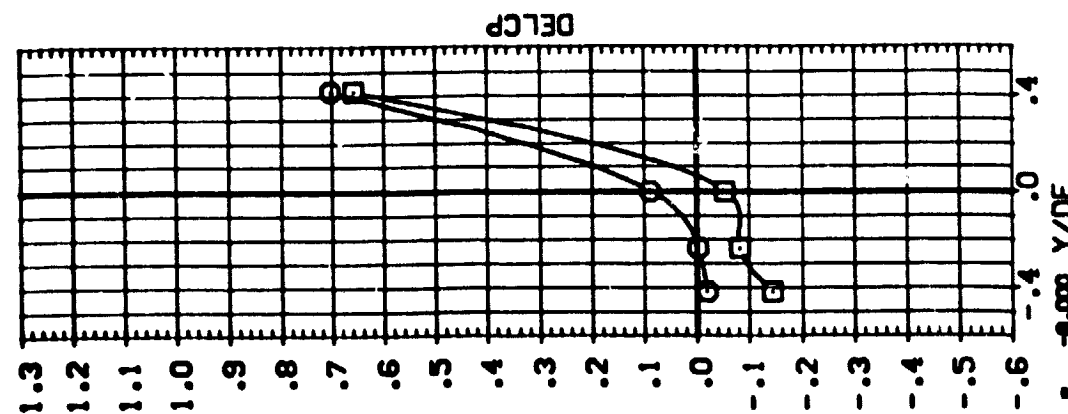
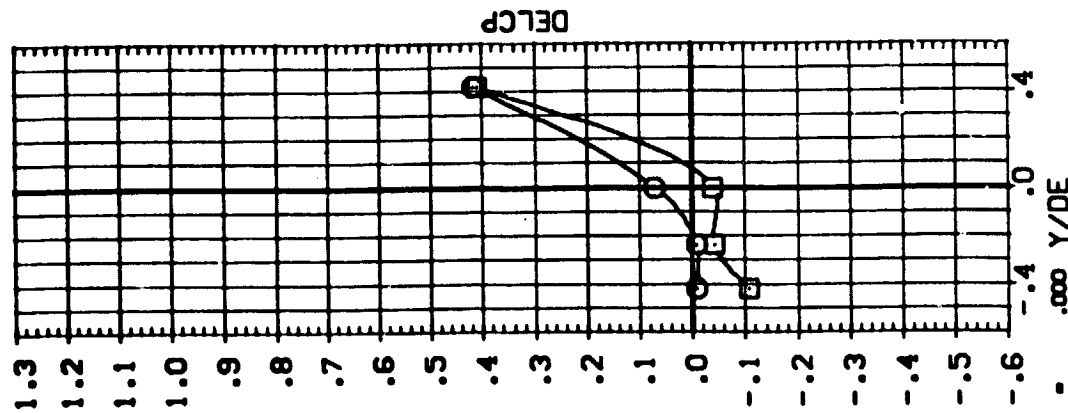
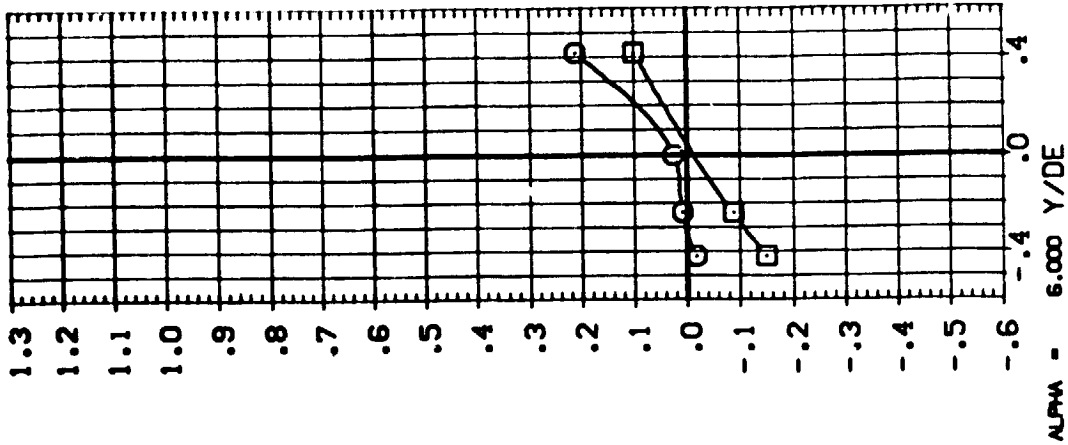
ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000

ALPHA = 0.000



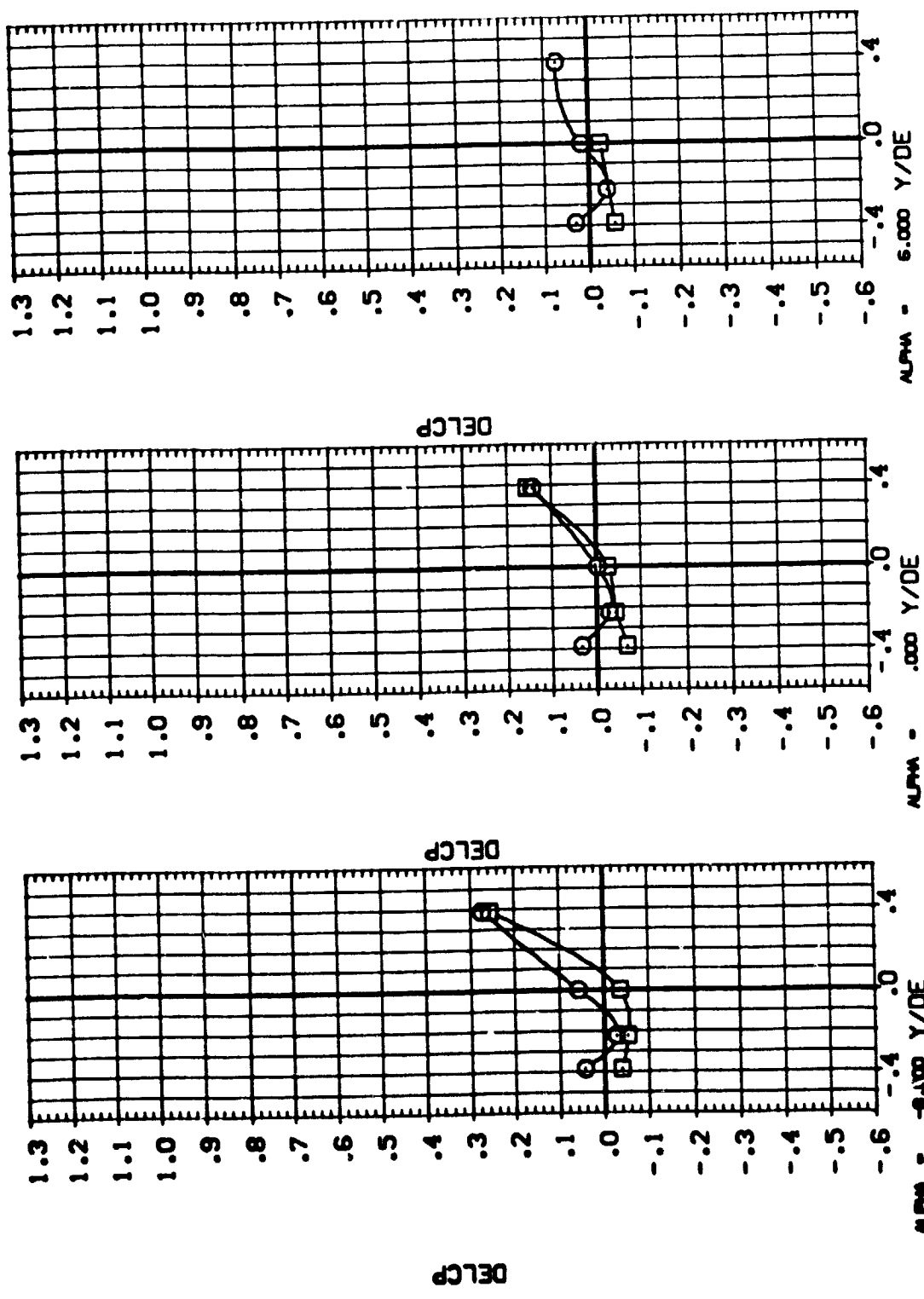
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMBOL: CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ: BETA POWER CTR SWPR  
 (NUS005) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ: .000 1.000 28.310 2.000  
 (NUS007)

CONFIGURATION DESCRIPTION



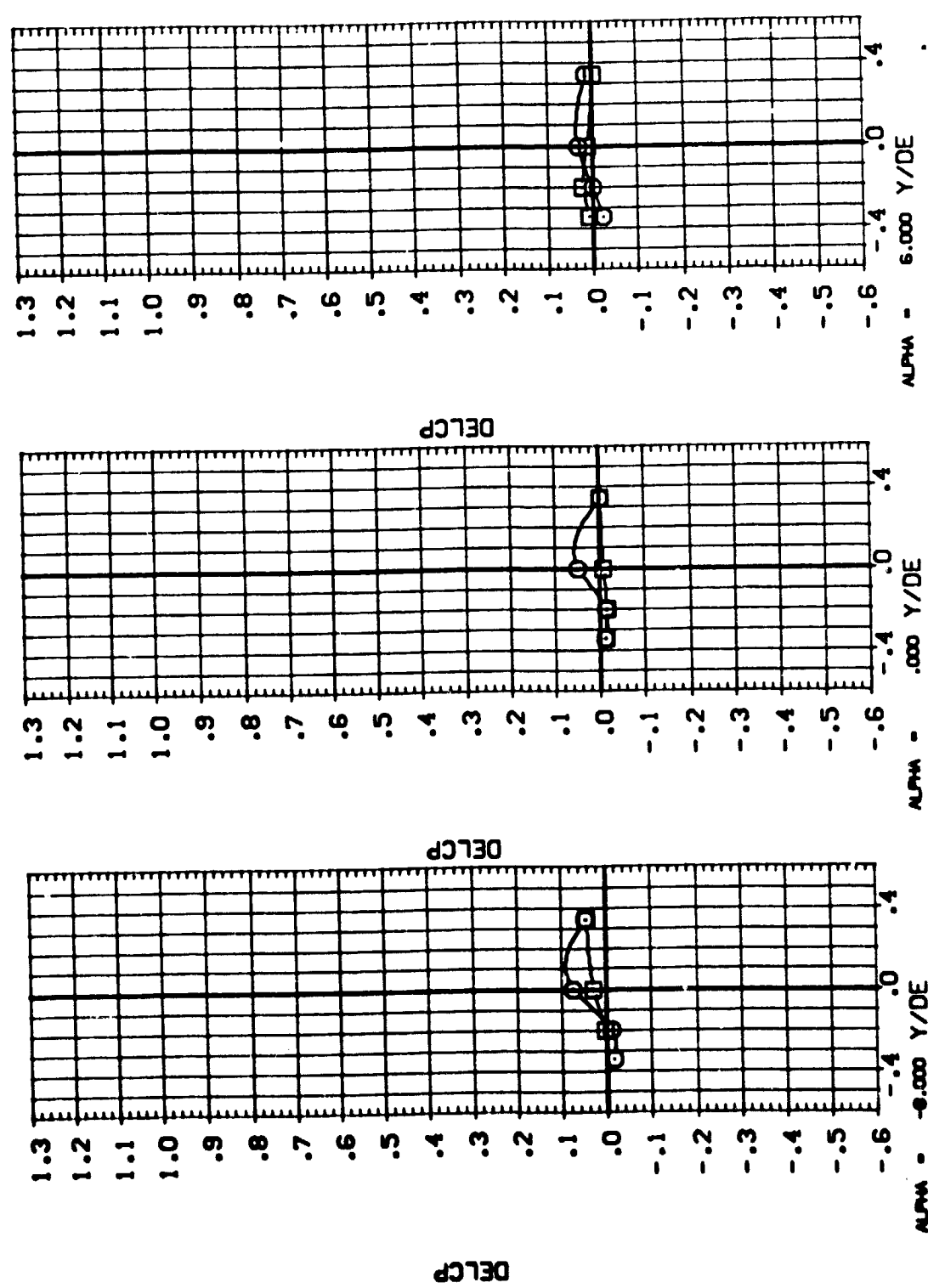
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    BETA    POWER    CPR    SPRR

(NLF005)    CAL T14-053 IAS 02 \* T1 \* S1 LOWER RH MPS NOZ.    .000    .000    26.310    2.020

(NLF007)    CAL T14-053 IAS 02 \* T1 \* S1 LOWER RH MPS NOZ.    .000    1.000            



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE



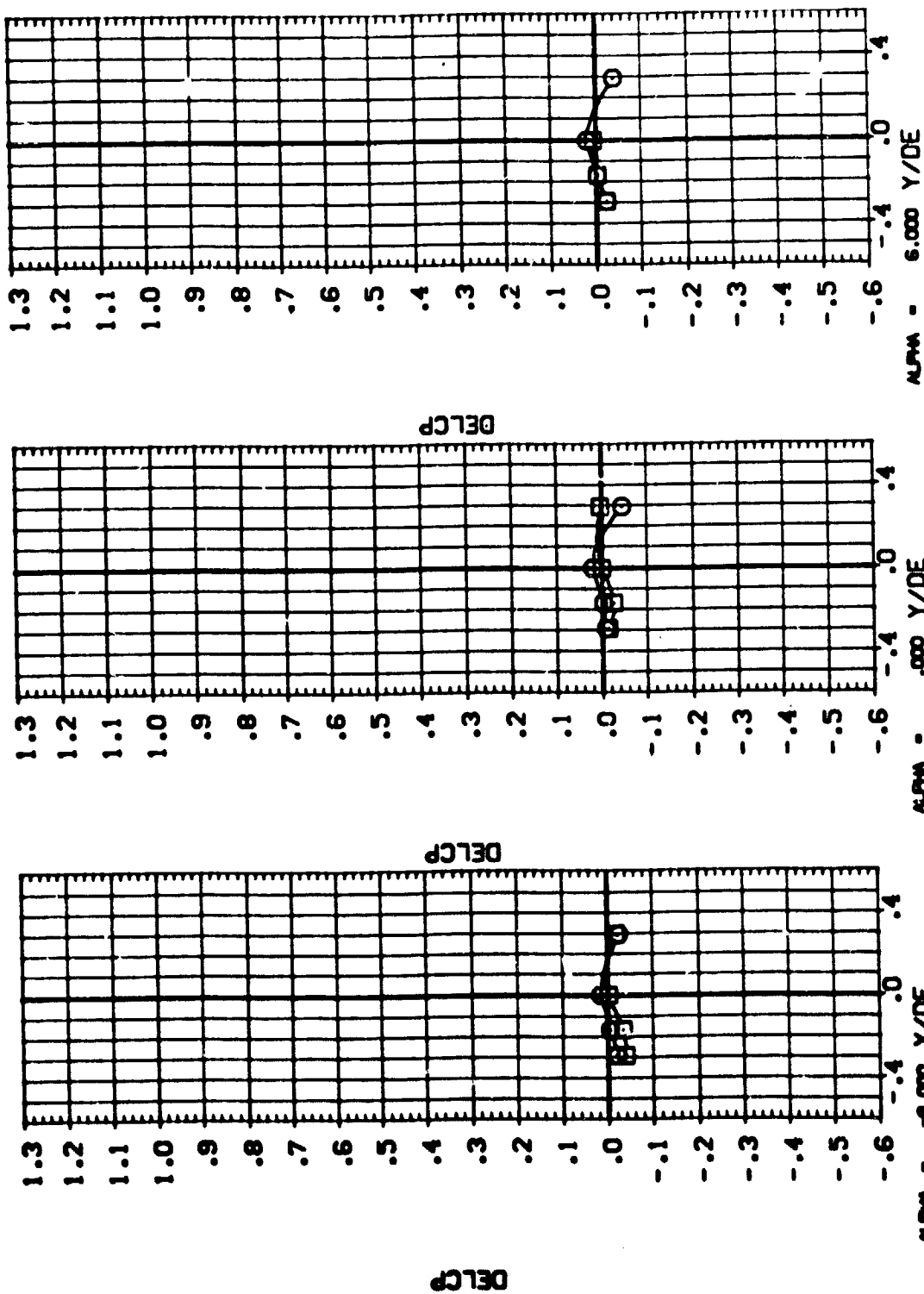


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DATA SET SYMBOL: 8  
 (NUP005)  
 (NUP007)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ:

BETA .000  
 POWER .000  
 CTR 28.310  
 SPWR 2.020



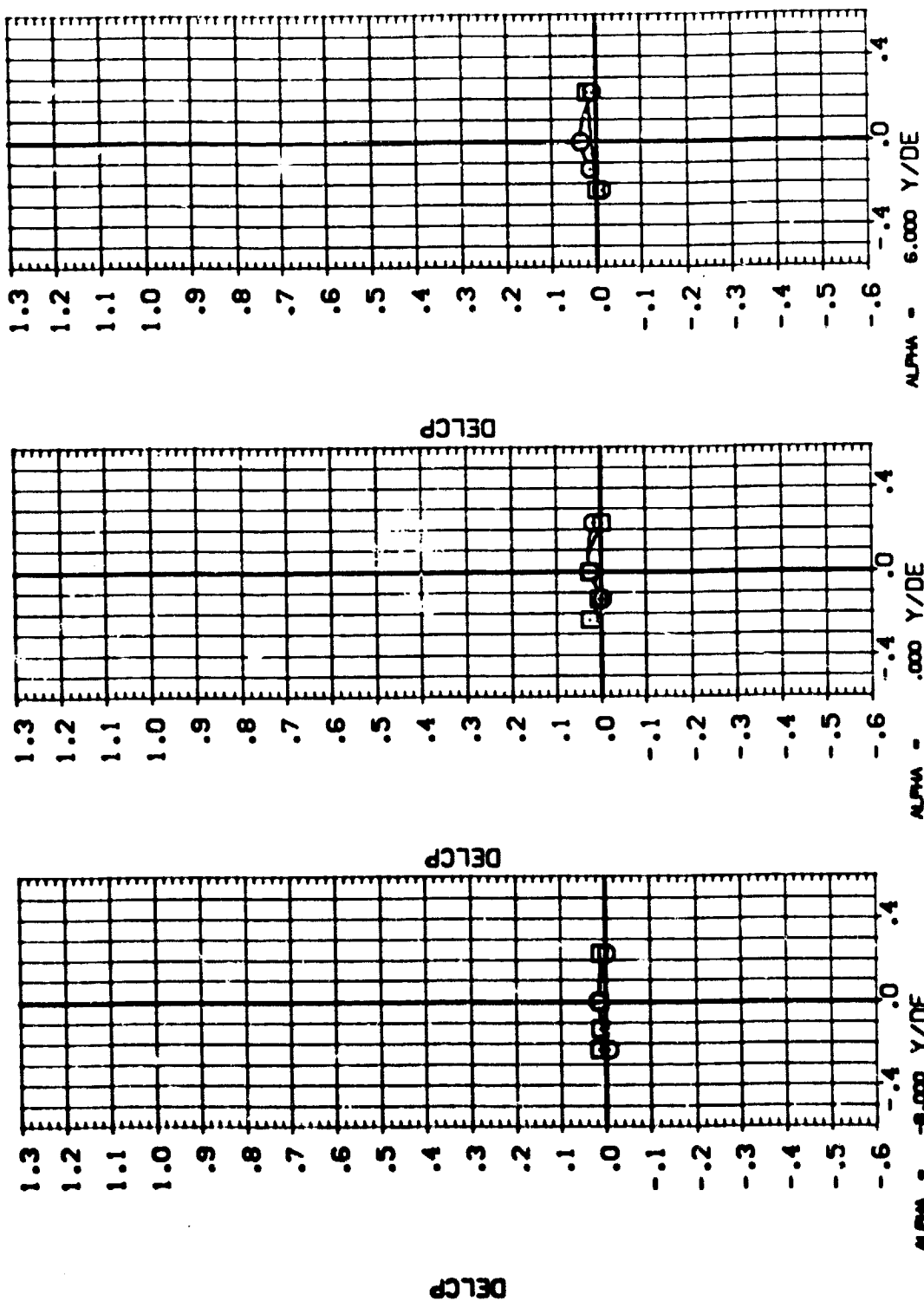
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .754



DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ.  
(MUS005) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ.  
(MUS007)

BETA: .000 POWER: .000 DFR: 20.310 SFRFR: 2.020

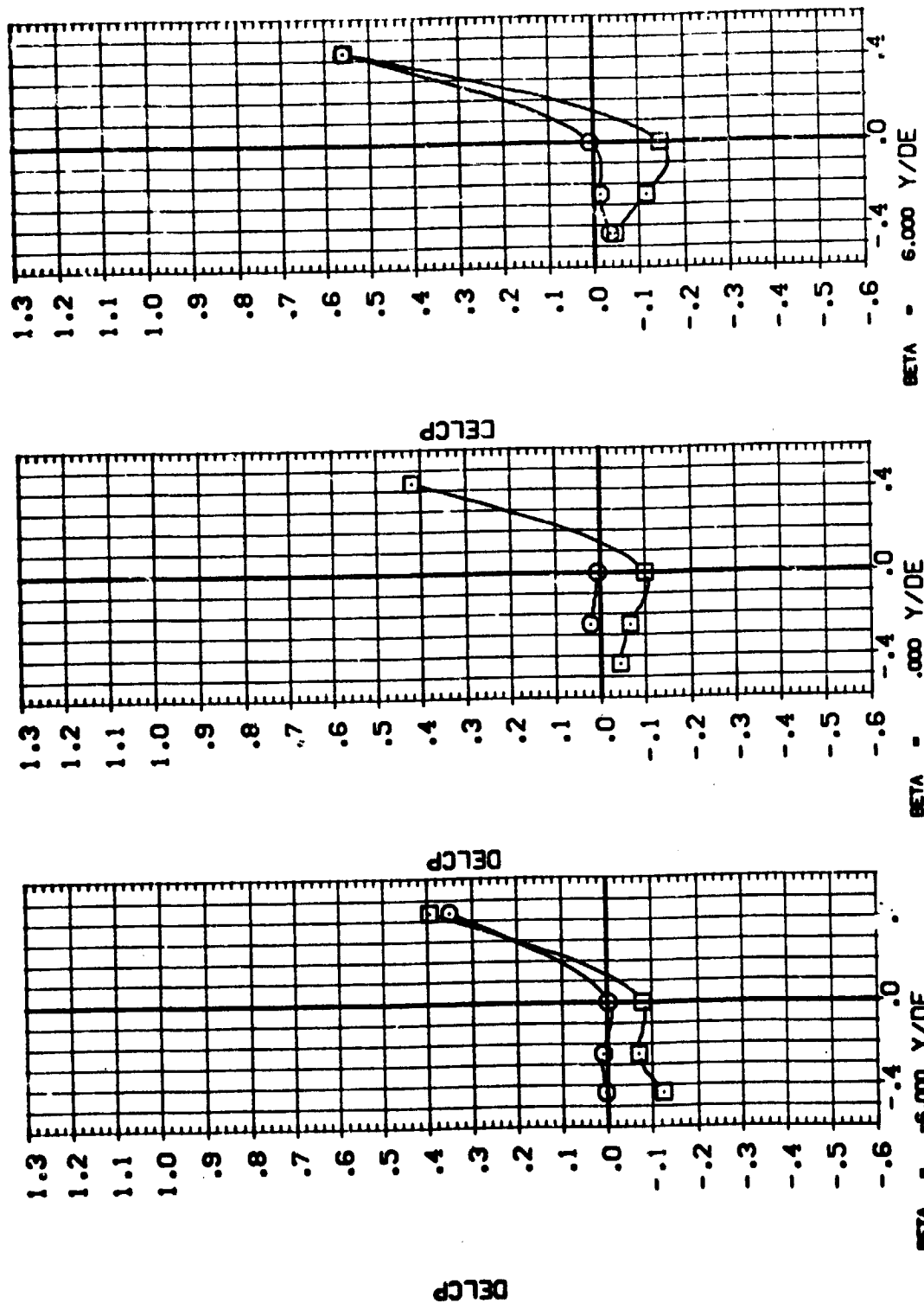


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

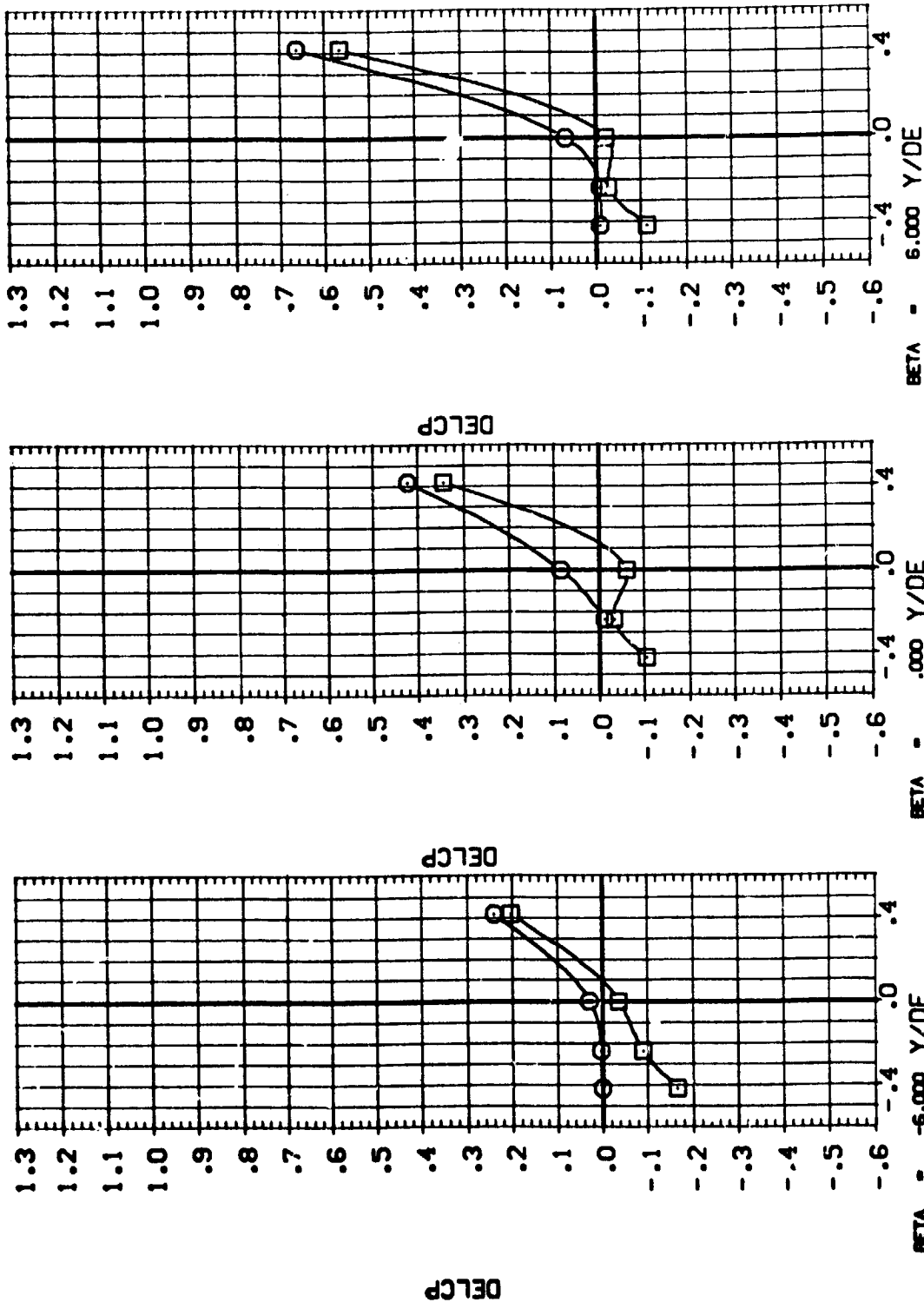
MACH = 1.200 X/DE = .928



DATA SET SYMBOL: CONFIGURATION DESCRIPTION: ALPHA POWER CPR SPRR  
(NLF005) CAL T14-053 [A35 C2 + T1] + S1 LOWER RH MPS NOZ: .000 .000 28.310 2.020  
(NLF006) CAL T14-053 [A35 C2 + T1] + S1 LOWER RH MPS NOZ: .000 1.000



DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA POWER DPR SRPRR  
 (NUFC08) 8 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: .000 .000 28.310 2.020  
 (NUFC08) 9 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: .000 .000 28.310 2.020



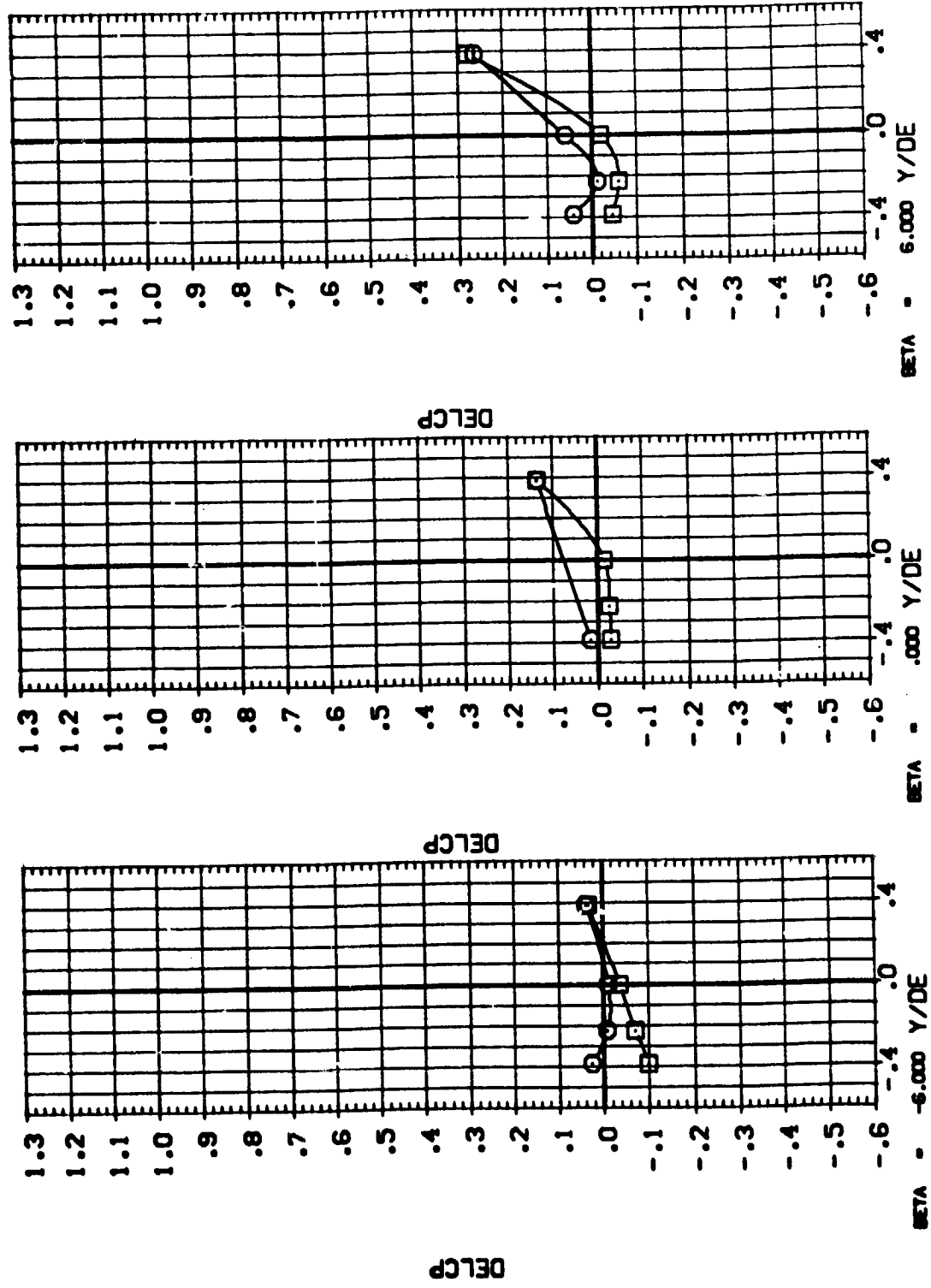
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMBOL: CAL 114-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ:  
(M/F005) B CAL 114-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ:  
(M/F005) B

ALPHA POWER CTR SPPR  
.000 .000 28.310 2.020



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

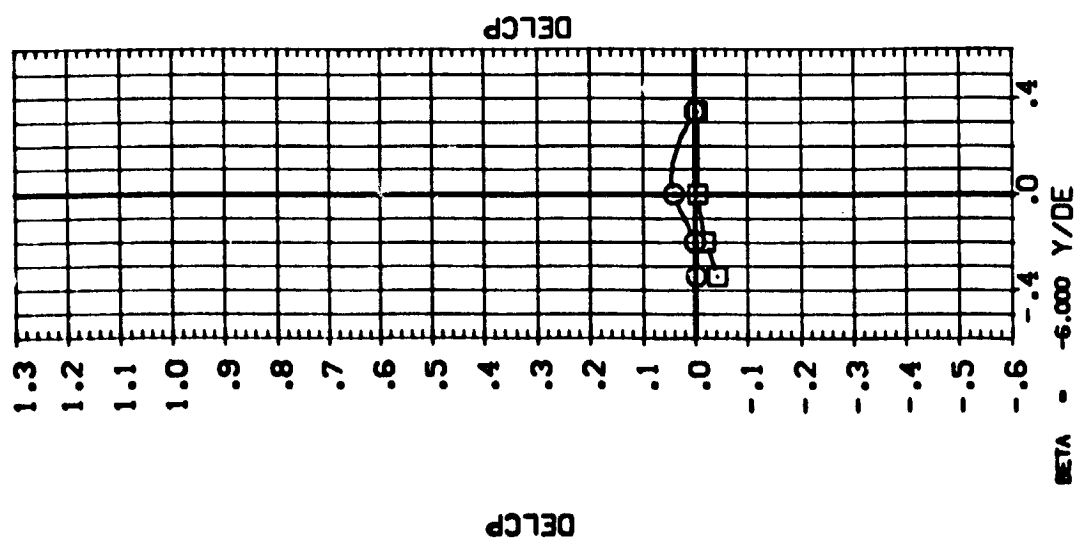
MACH = 1.200 X/DE = .406

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[NUPCOS] [NUPCOS]

CAL T14-053 IAS6 Q2 : T1 : S1 LOWER RH MPS NOZ.  
CAL T14-053 IAS6 Q2 : T1 : S1 LOWER RH MPS NOZ.

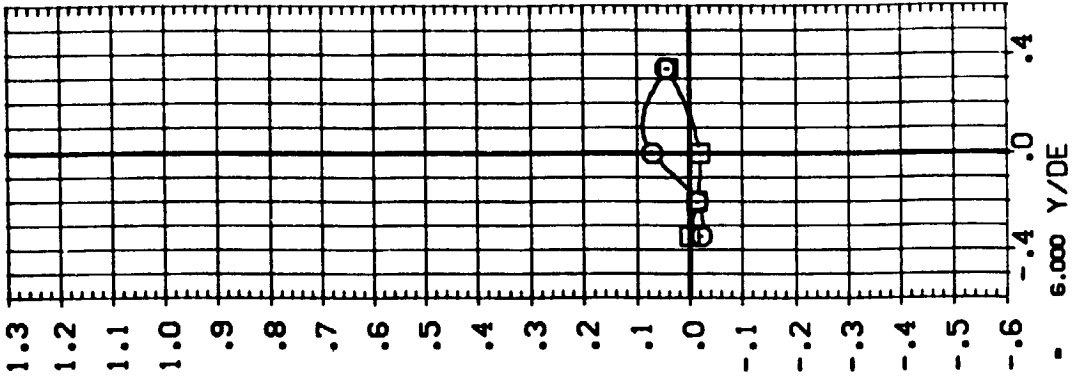
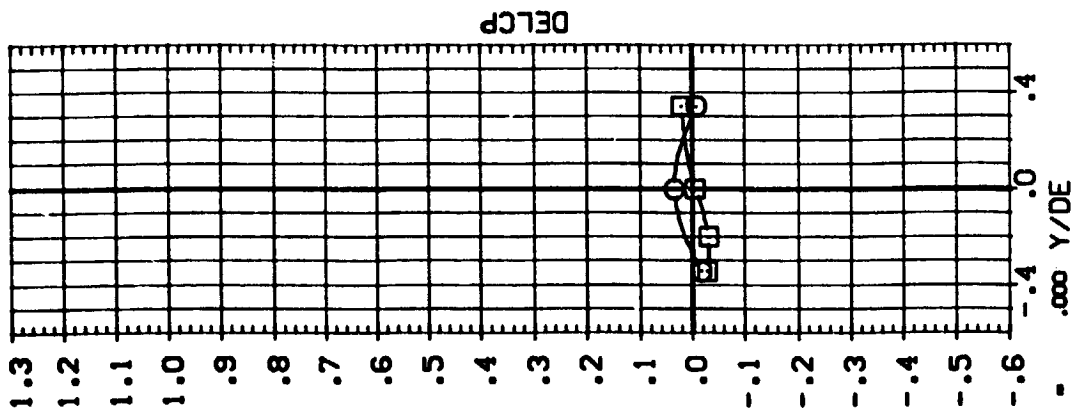
ALPHA POWER DFR SMFR  
.000 .000 28.310 2.020  
.000 1.000



BETA = -6.000 Y/DE

BETA = .000 Y/DE

BETA = 6.000 Y/DE

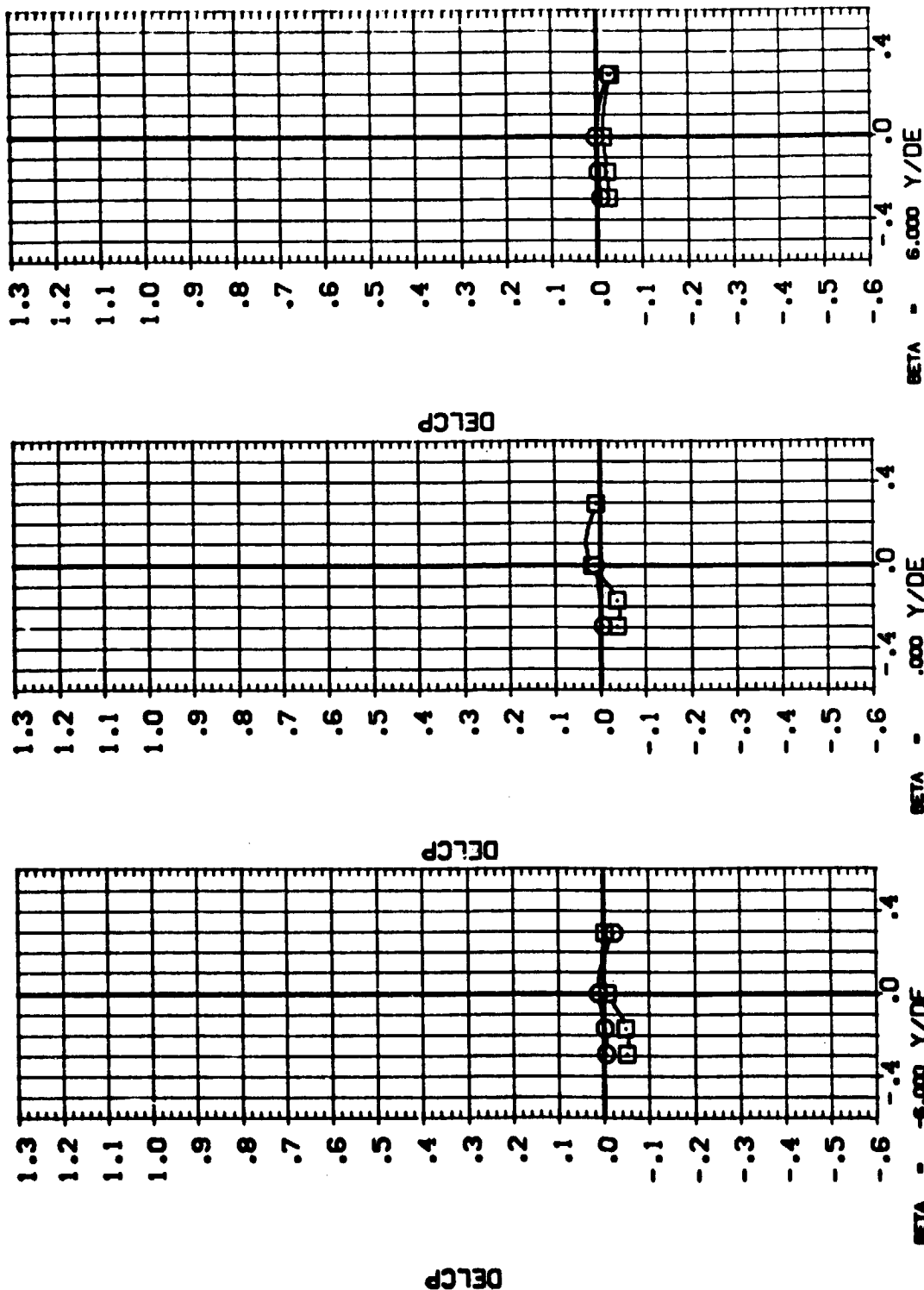


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .580



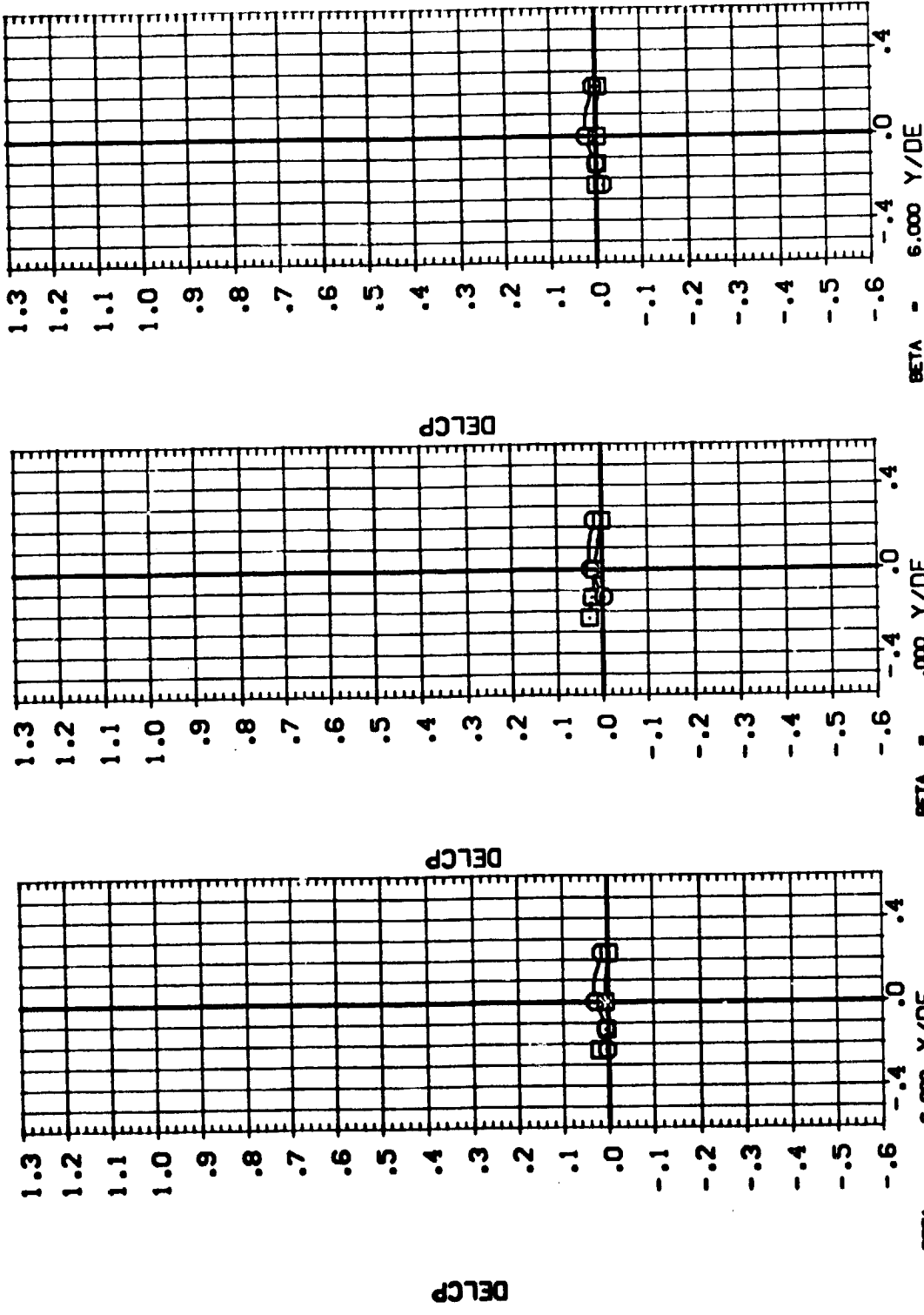
DATA SET SYMBOL: CONFIGURATION DESCRIPTION: ALPHA POWER C/PR SWPR  
(NUPCOS) CAL 114-053 1A38 02 : T1 : S1 LOWER RH MPS NOZ: .000 .000 29.310 2.000  
(NUPCOS) CAL 114-053 1A38 02 : T1 : S1 LOWER RH MPS NOZ: .000 .000



DATA SET SYMBOL: **Q** CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.; CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.;

ALPHA: .000 POWER: .000 SRRFR: 2.020

OPR: 28.310



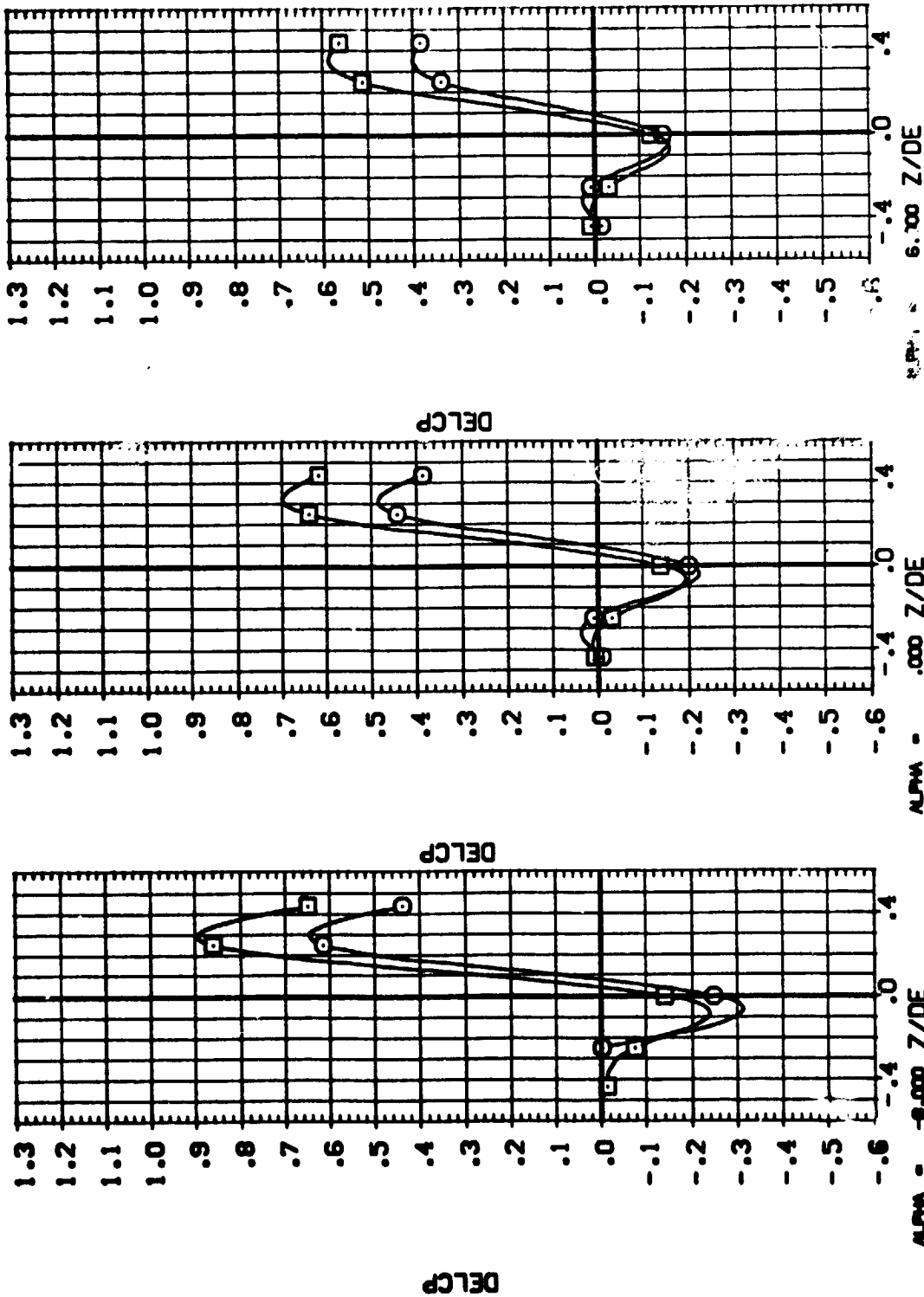
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .928





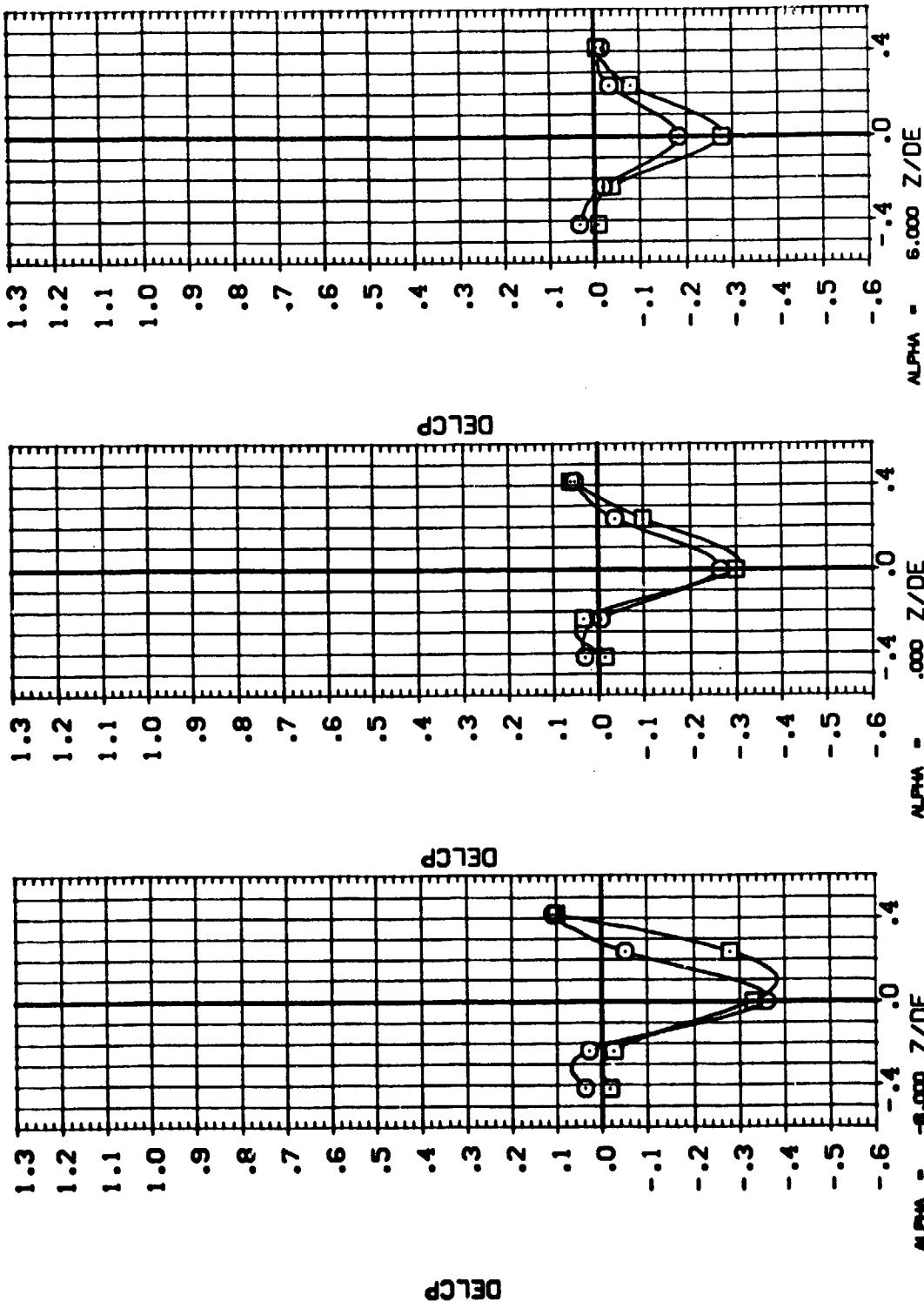
DATA SET SYMBOL: CAL T14-053 IAS 02 : 11 : S1 UPPER MPS NOZZLE  
(SUFAD01) (SUFAD02) (SUFAD03) BETA: .000 .000 .000 POWER: .000 .000 .000 CPR: 36.200 36.200 36.200 SUPPR: 2.300 2.300 2.300



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (SUF A01) (SUF A03) BETA: .000 POWER: .000 CPR: 36.200 SHPR: 2.300

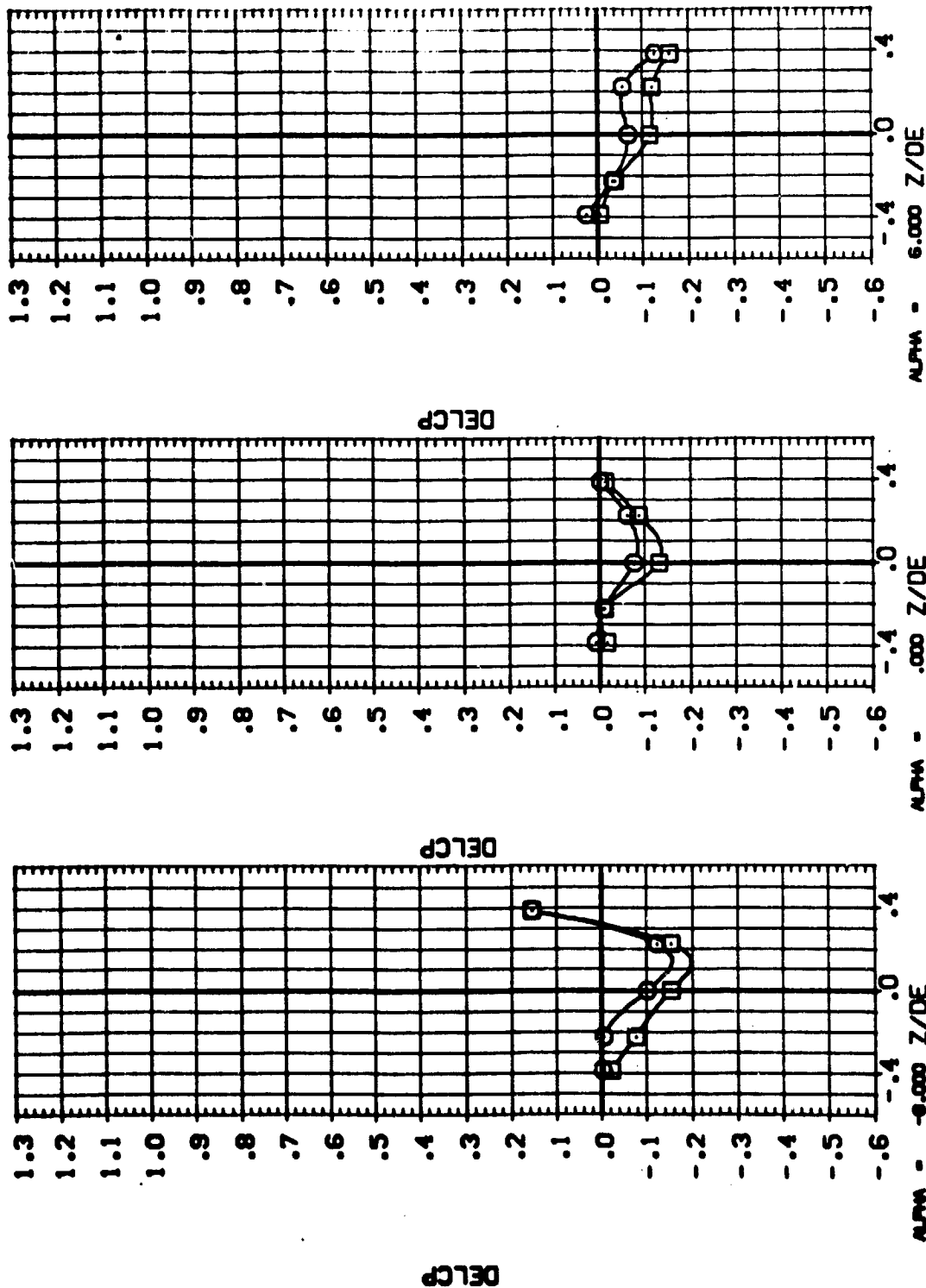


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .232



DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
[SUFAD01] [SUFAD03] BETA .000 POWER CPR 36.200 SHPR 2.300  
CAL T14-053 IAS 02 + T1 + S1 LOWER MPS NOZZLE

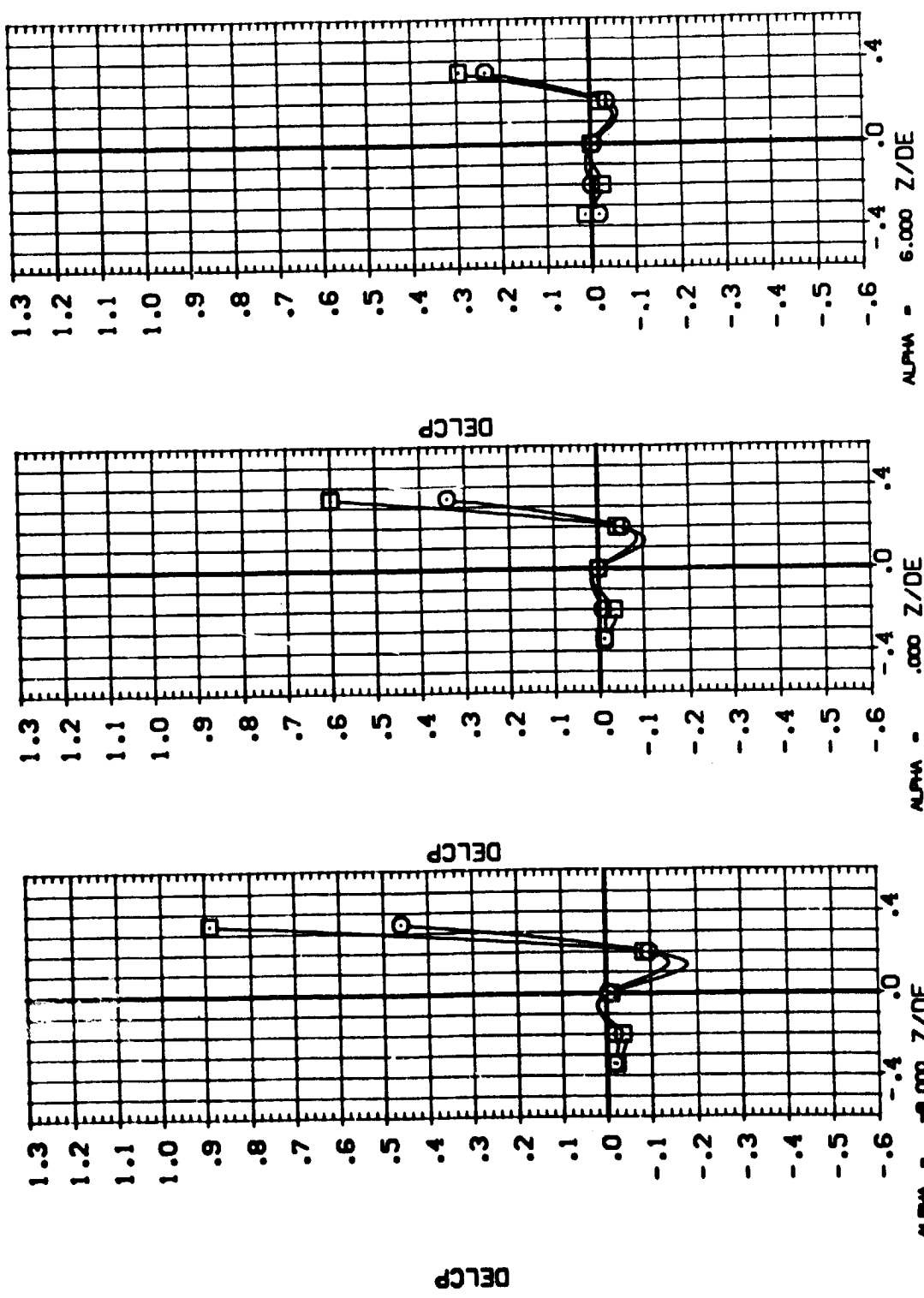


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: CAL 114-053 (SUFAD03) CONFIGURATION DESCRIPTION: CAL 114-053 (SUFAD03) : 11 : S1 UPPER MPS NOZZLE : 11 : S1 UPPER MPS NOZZLE

BETA .000 .000 POWER .000 .000 SPRR 2.300 2.300



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

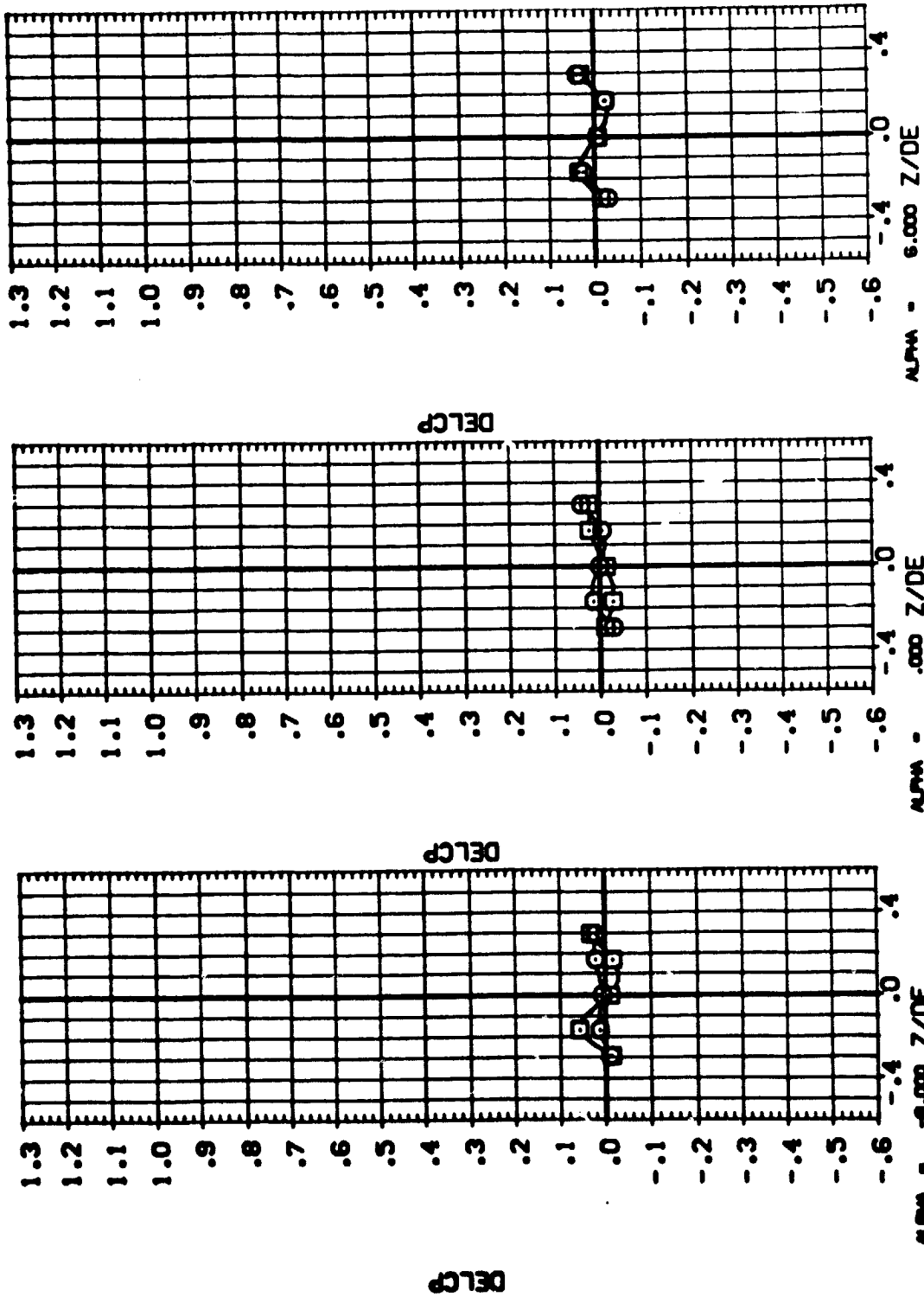
MACH = .900 X/DE = .580



DATA SET SWELL. CONFIGURATION DESCRIPTION

(SURFAD) CAL 114-053 1/36 02 : T1 : S1 UPPER MPS NOZZLE  
(SURFAD) CAL 114-053 1/36 02 : T1 : S1 UPPER MPS NOZZLE

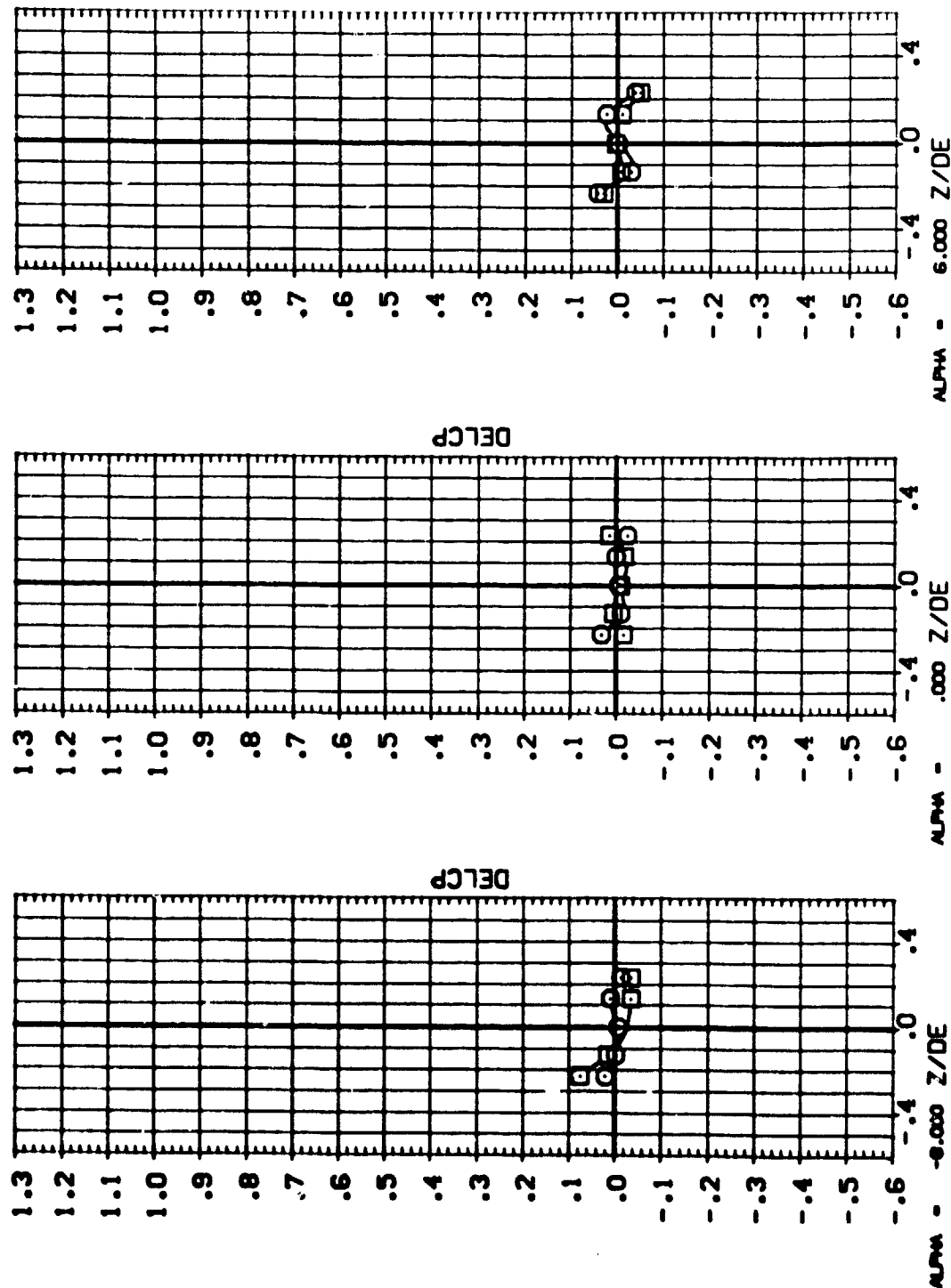
BETA POWER CTR SWPR  
.000 .000 36.200 2.330



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 \* T1 \* S1 UPPER MPS NOZZLE  
 (SUFAD1) CAL T14-053 IAS 02 \* T1 \* S1 UPPER MPS NOZZLE  
 (SUFAD2) BETA .000 POWER .000 CPR 36.200 SNRPR 2.300



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

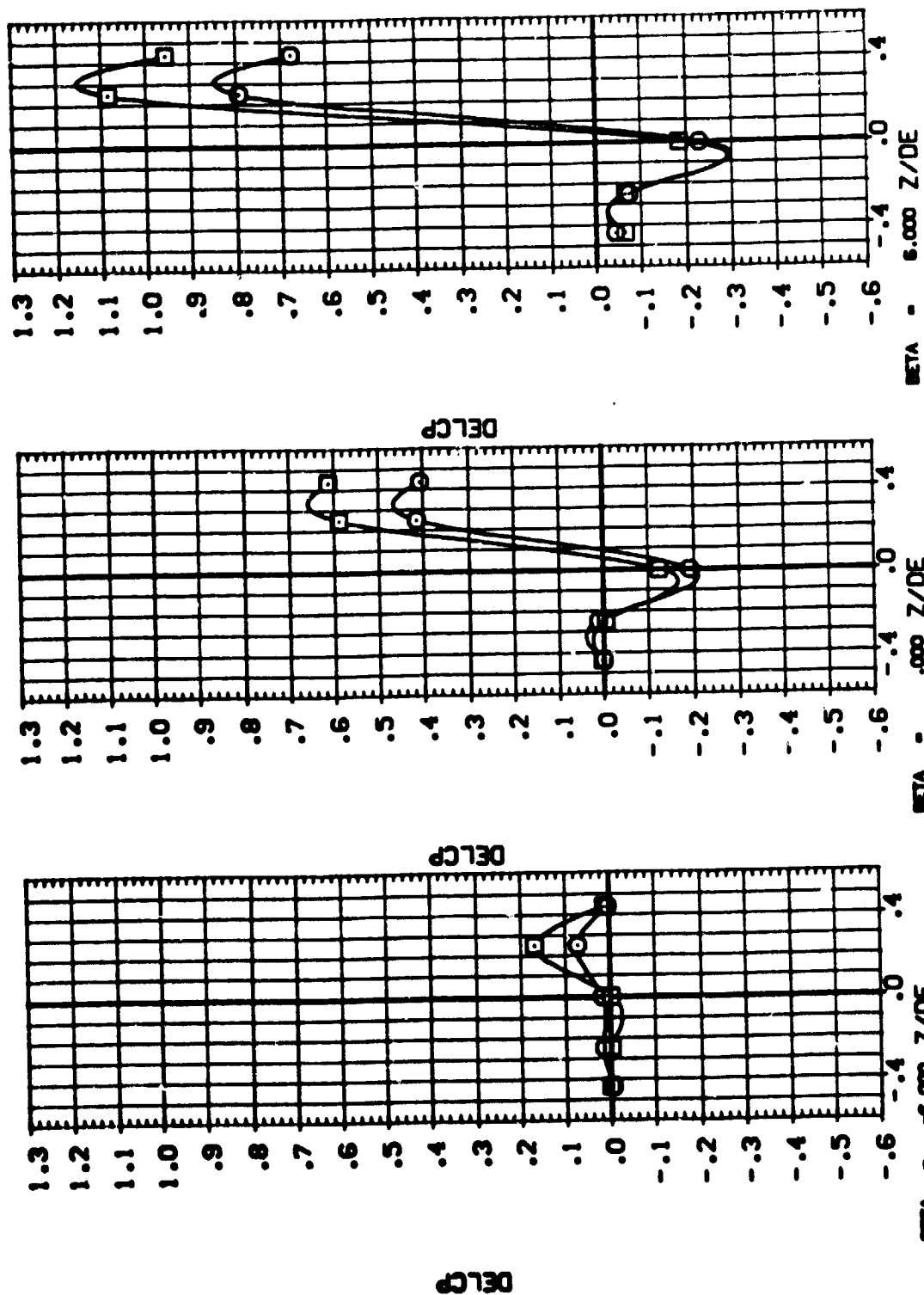
MACH = .900 X/DE = .928



1

DATA SET SWED. CONFIGURATION DESCRIPTION  
 {BFA02} B CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 {BFA04} B CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE

ALPHA .000 POWER .000 GPR 36.300 SWPR 2.300



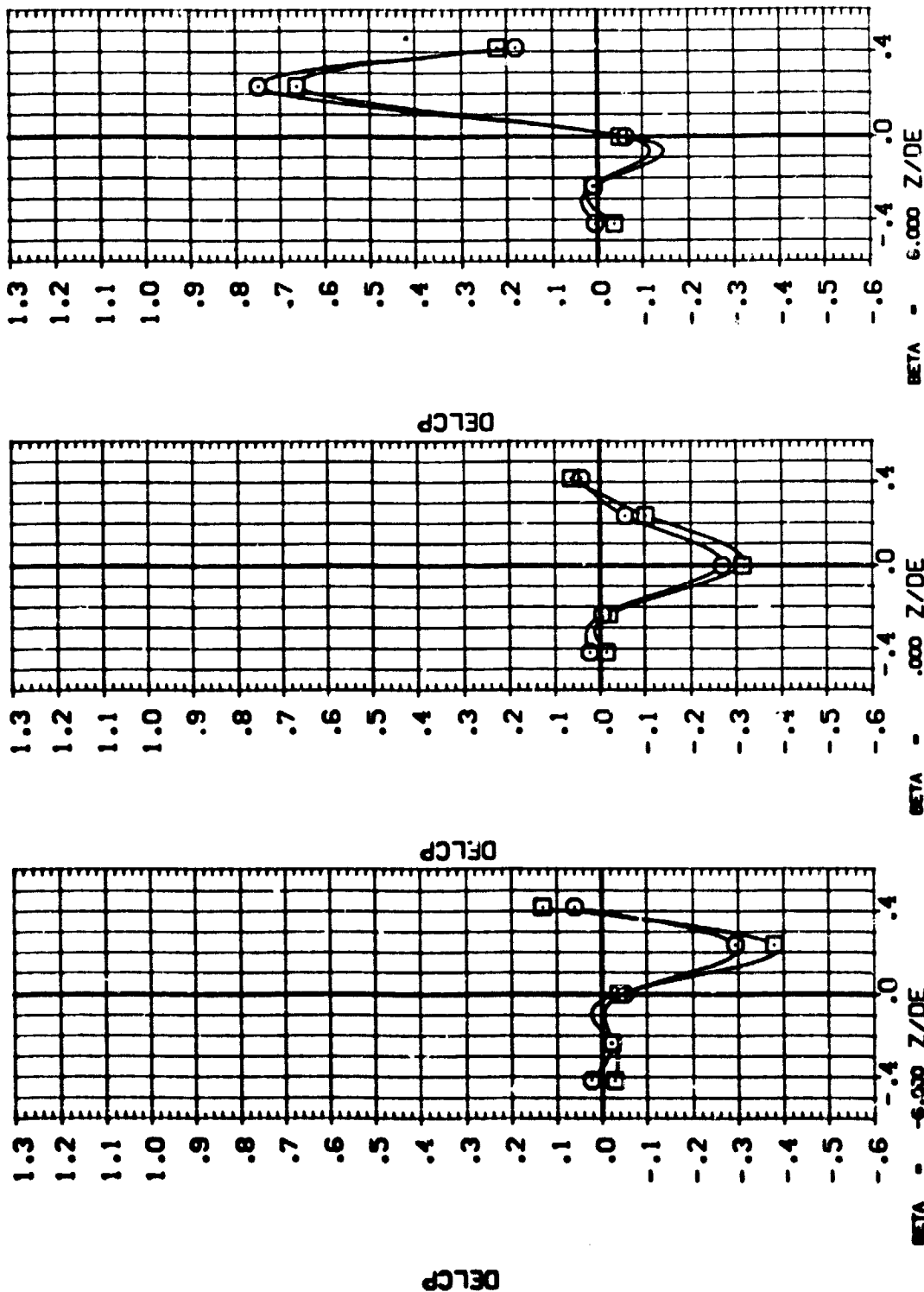
DELTA PRESSURE DISTRIBUTION. UPPER MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: 8  
 (8/5/02)  
 (8/5/04)

CONFIGURATION DESCRIPTION:  
 CAL T14-033 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 CAL T14-033 IAS 02 : T1 : S1 UPPER MPS NOZZLE

ALPHA: .000  
 POWER: .000  
 CPR: 36.200  
 SWPR: 2.300



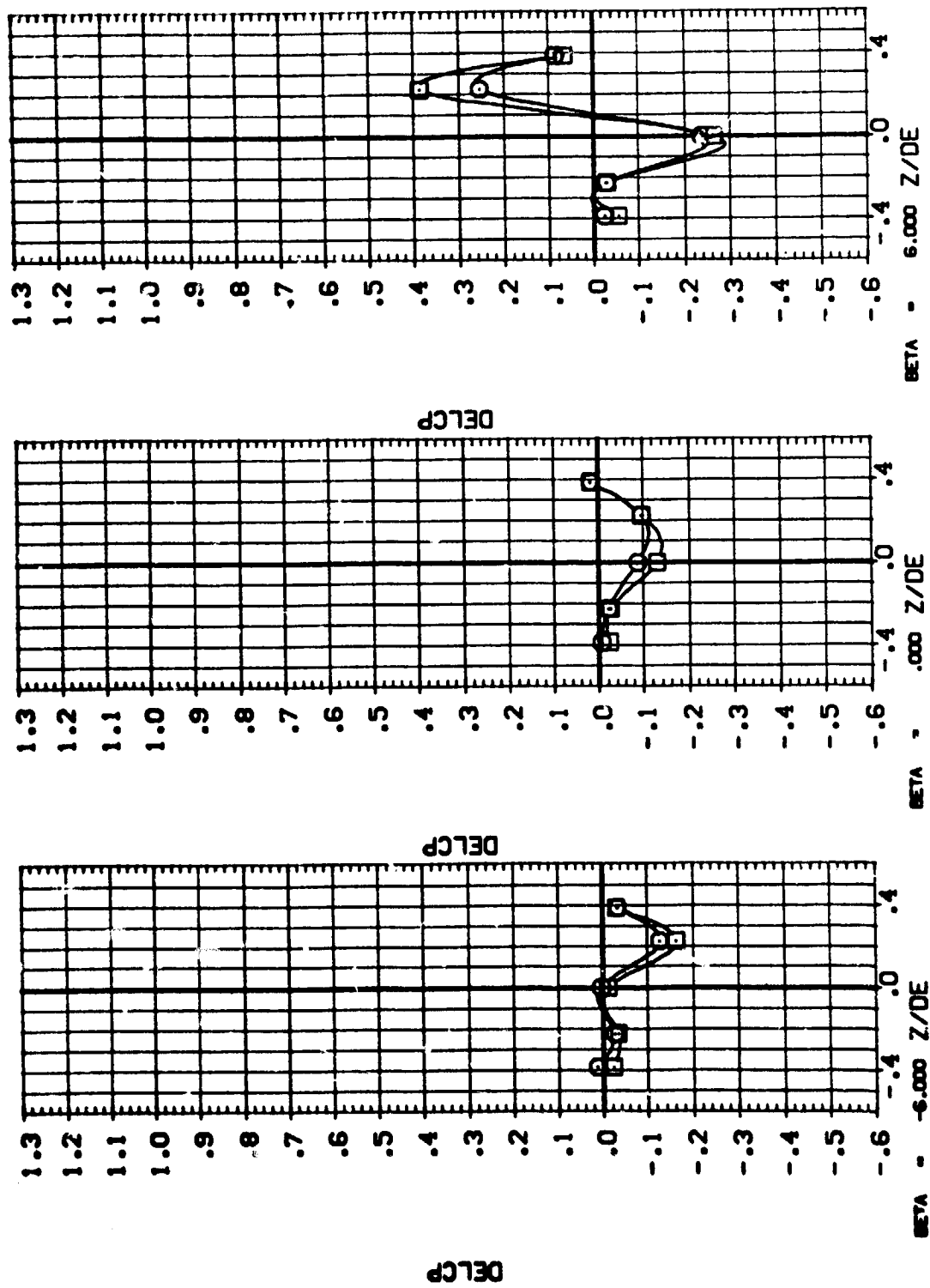
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .232





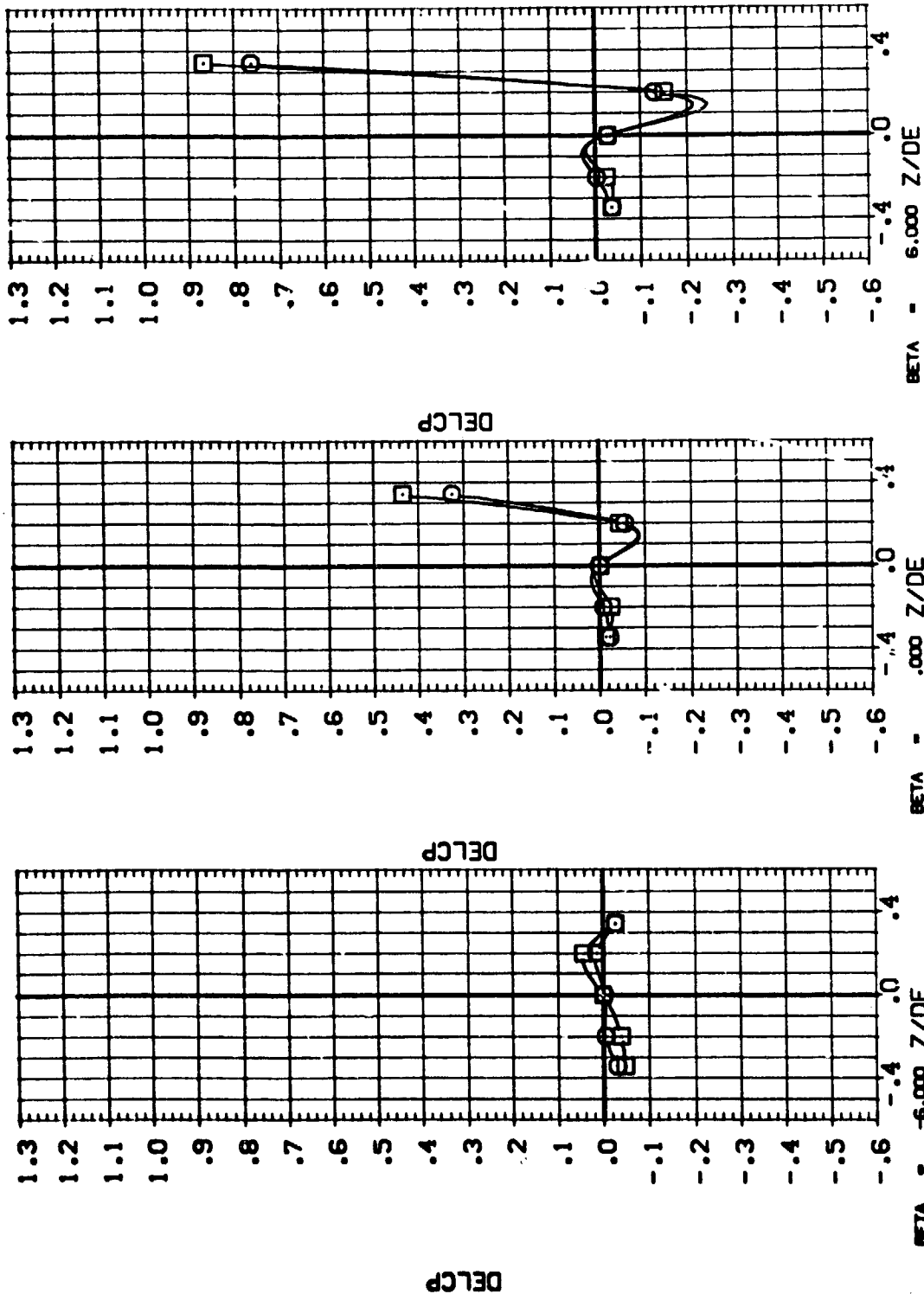
DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 [SUFAD2] B CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 [SUFAD4] ALPHA POWER CPR SNRPR  
 .000 .000 38.200 2.330



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: (SUF002) (SUF001) CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 x T1 x S1 UPPER MPS NOZZLE ALPHA: .000 POWER: .000 DPR: 36.200 SPRR: 2.300



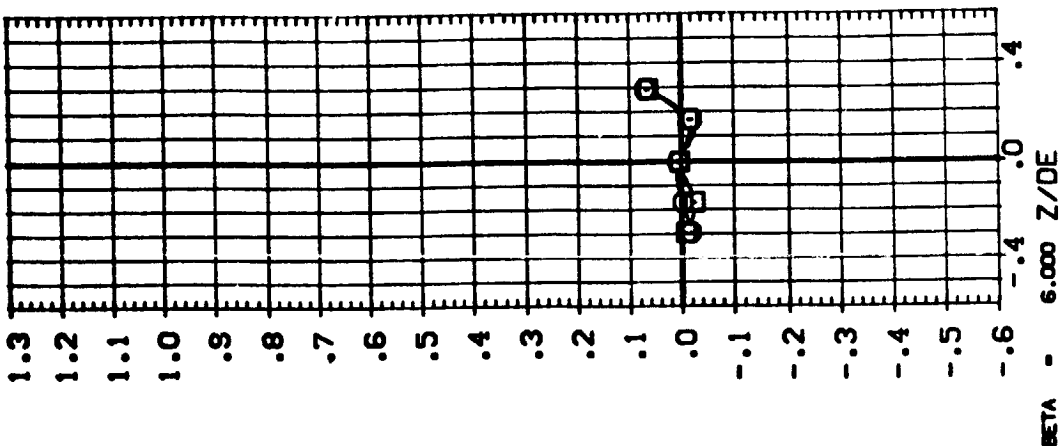
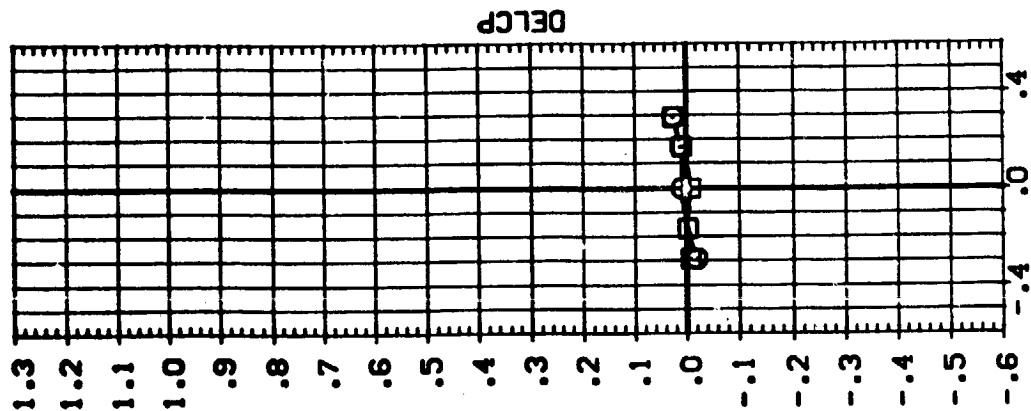
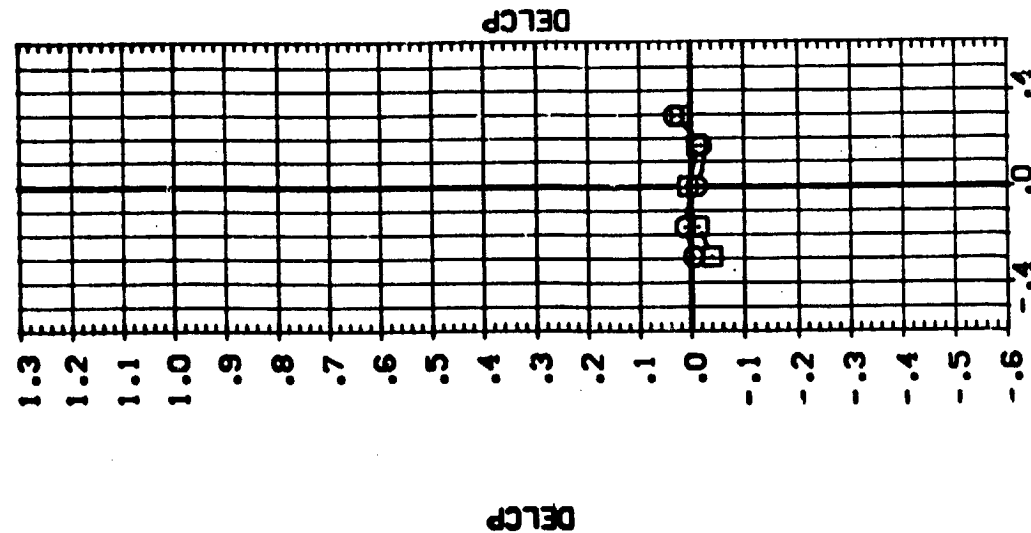
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .580



DATA SET SYMBOL: ☐ CAL T14-053  
 CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE

ALPHA .000 .000 .000  
 POWER .000 .000 .000  
 CPM 36.200 36.200 36.200  
 SNRPR 2.330 2.330 2.330



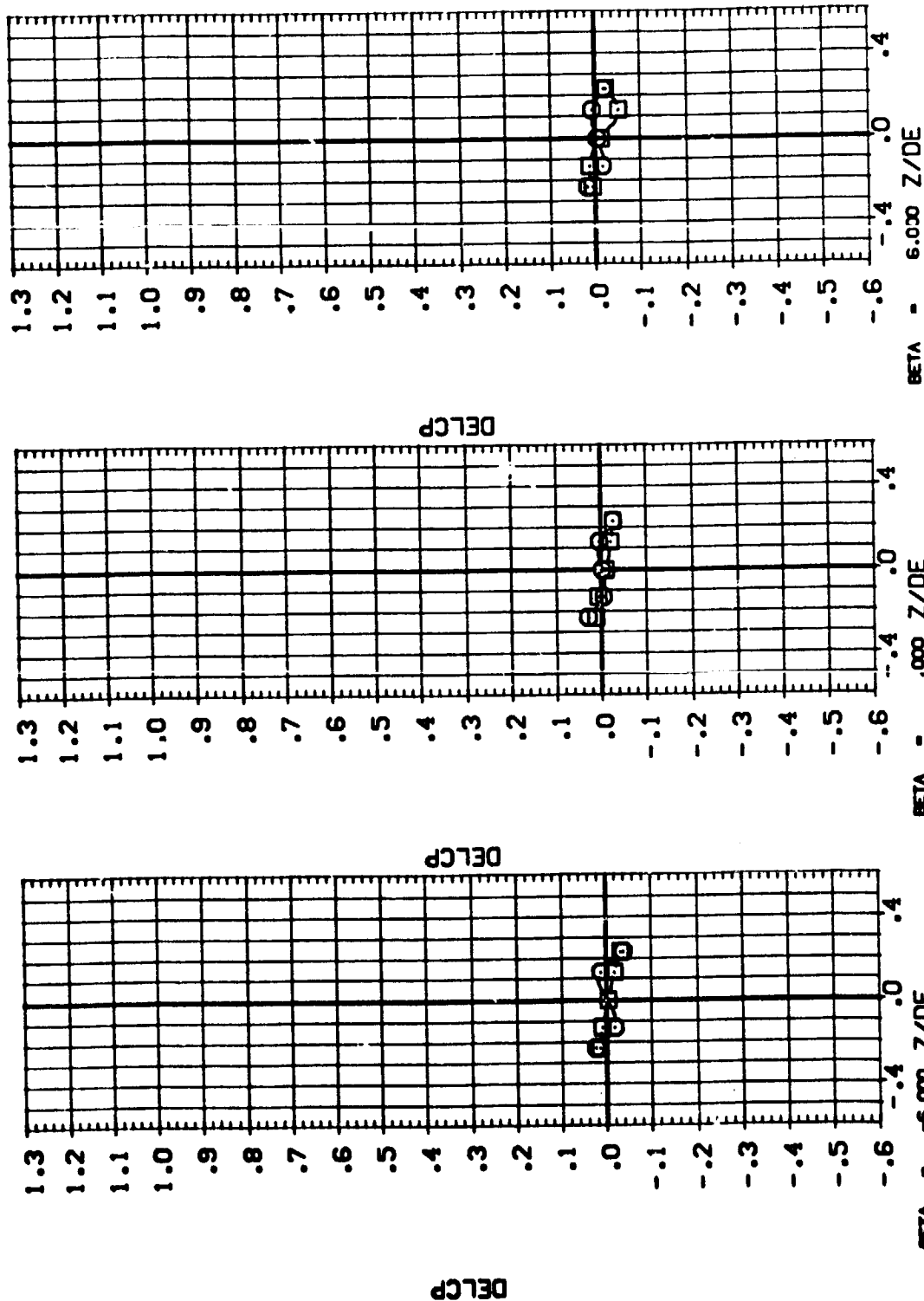
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    POWER    OPR    SPRR

(SUF A02)    CAL 114-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE    .000    .000    36.200    2.330

(SUF A01)    CAL 114-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE    .000    1.000         



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

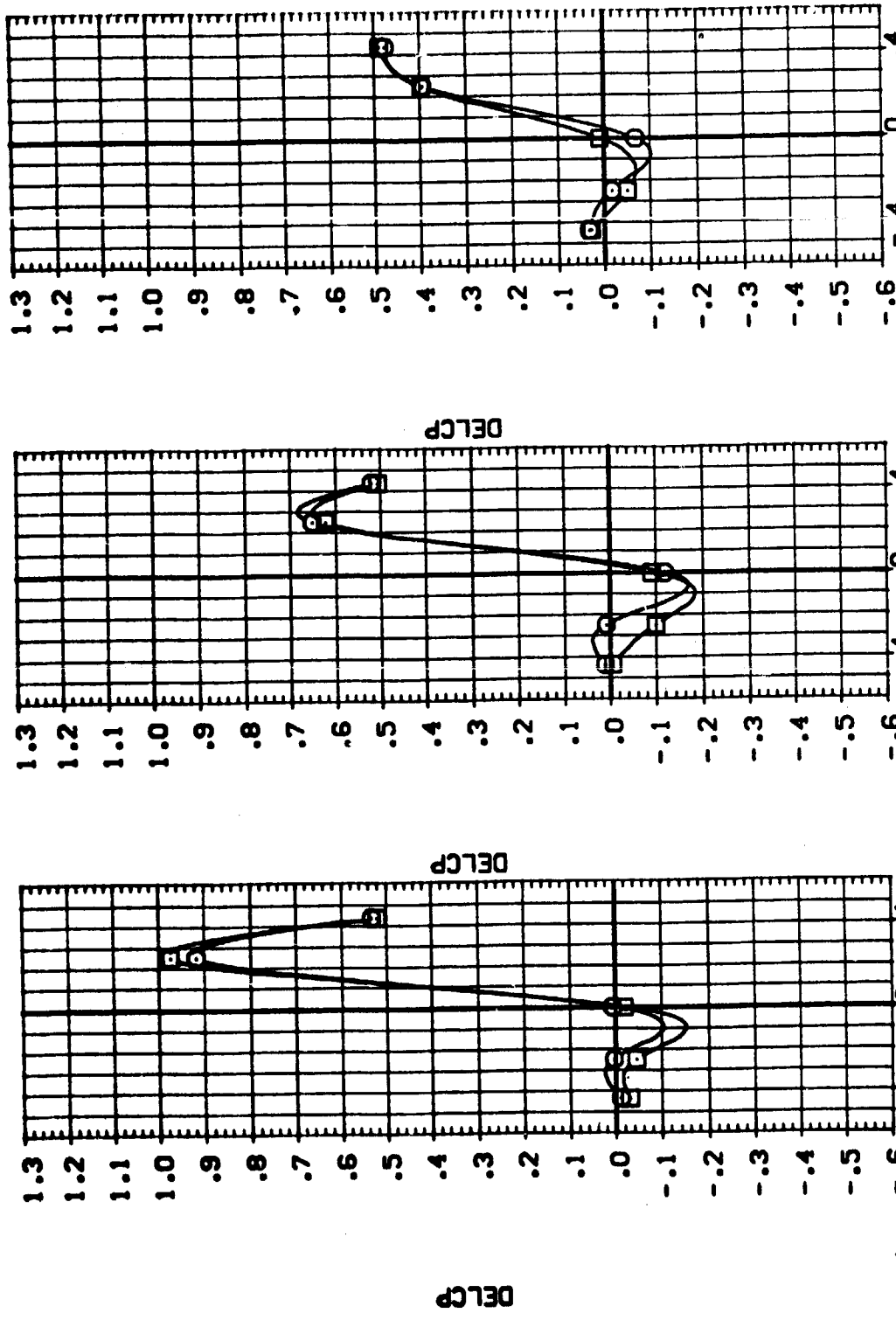
MACH = .900    X/DE = .928



DATA SET SYMBOL: 0  
 (S/F A05)  
 (S/F A07)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

BETA: .000  
 POWER: .000  
 DFR: 28.310  
 SFR: 2.020

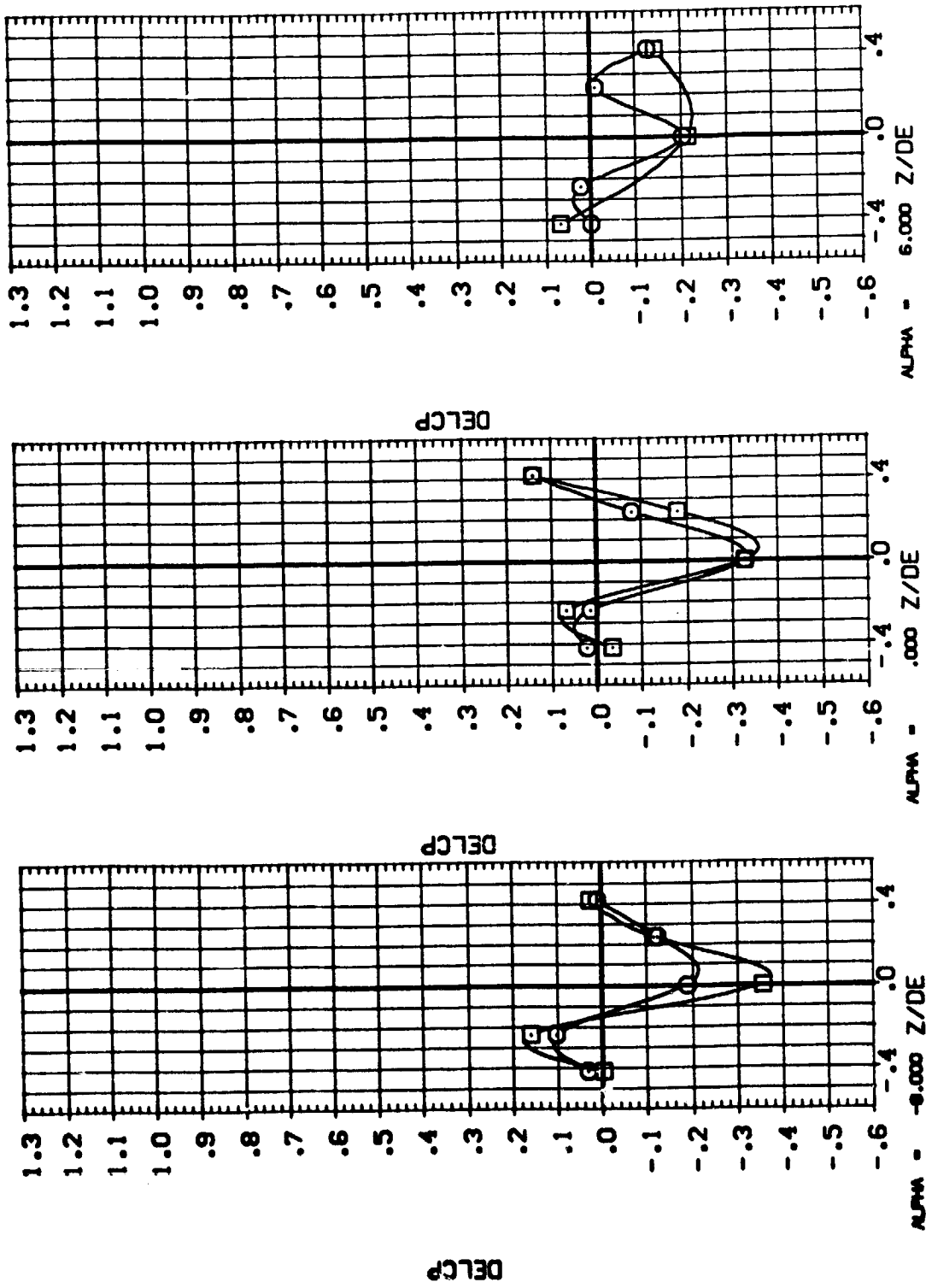


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: CAL T14-053 IAS 02 \* T1 \* S1 UPPER MPS NOZZLE  
 (SUF05) CAL T14-053 IAS 02 \* T1 \* S1 UPPER MPS NOZZLE  
 (SUF07)

BETA .000 .000 .000  
 POWER 1.000 1.000 1.000  
 CPR 28.310 28.310 28.310  
 SPRR 2.020 2.020 2.020



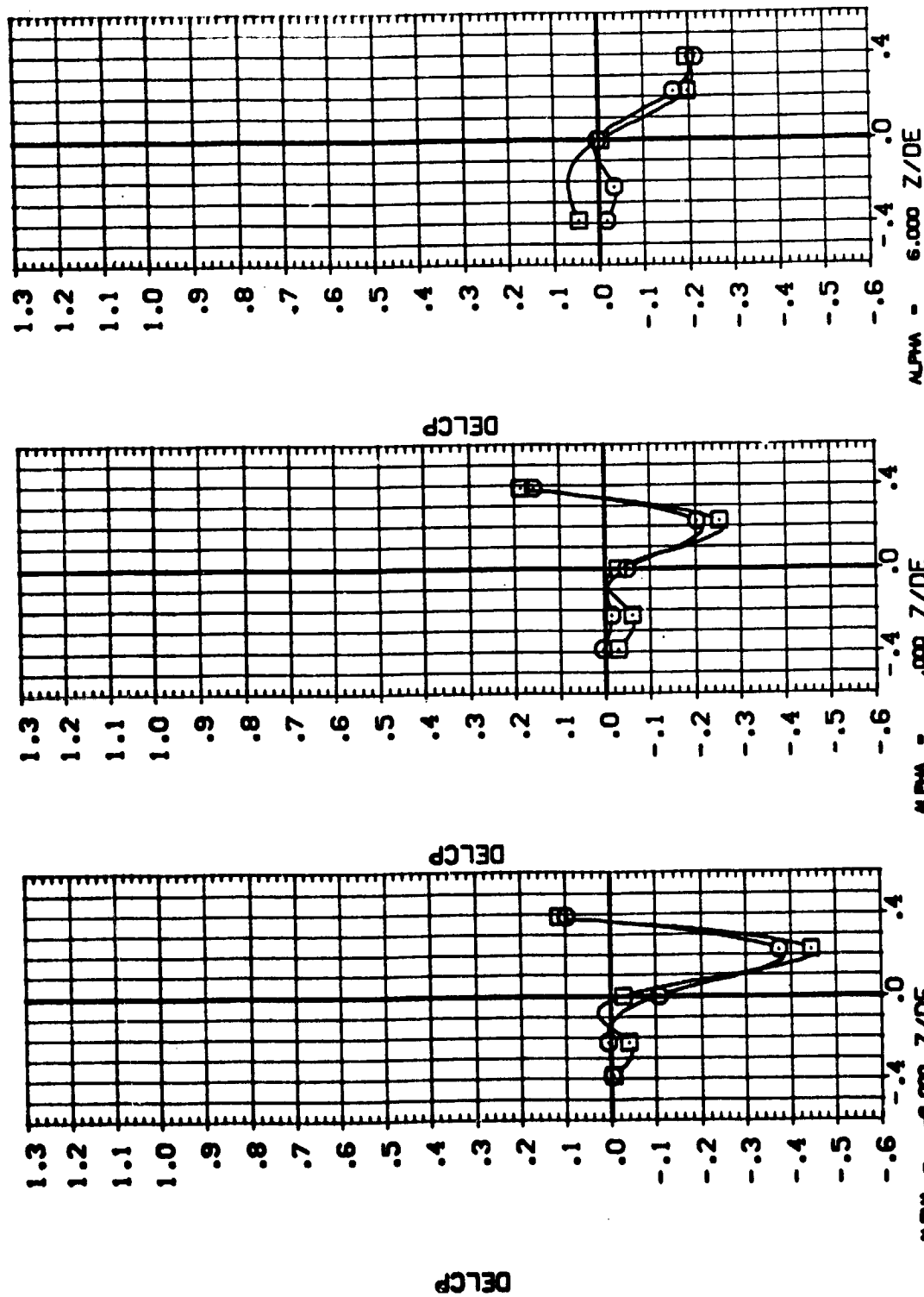
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMB. CONFIGURATION DESCRIPTION  
(SUFAC5) CAL T14-053 IAS 02 : 11 : S1 UPPER MPS NOZZLE  
(SUFAC7) CAL T14-053 IAS 02 : 11 : S1 UPPER MPS NOZZLE

BETA	POWER	GPR	SWPR
.000	.000	28.310	2.000
.000	1.000		



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL. CONFIGURATION DESCRIPTION

{SUFAC5}

{SUFAC7}

CAL T14-053 IAS6 02 + T1 + S1

UPPER MPS NOZZLE

CAL T14-053 IAS6 02 + T1 + S1

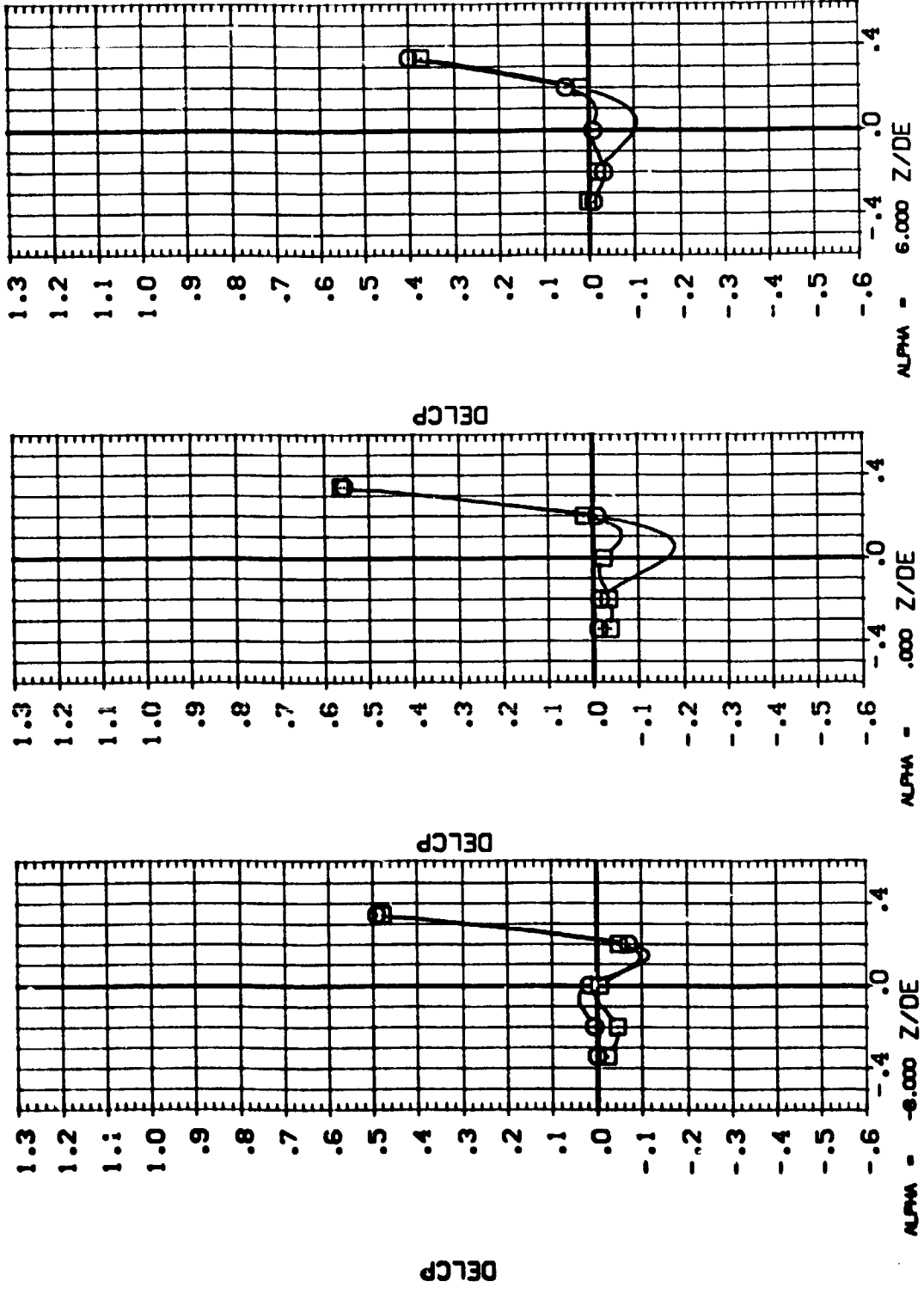
UPPER MPS NOZZLE

BETA .000 .000

POWER .000 .000

CPR 28.310

SRPR 2.020



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

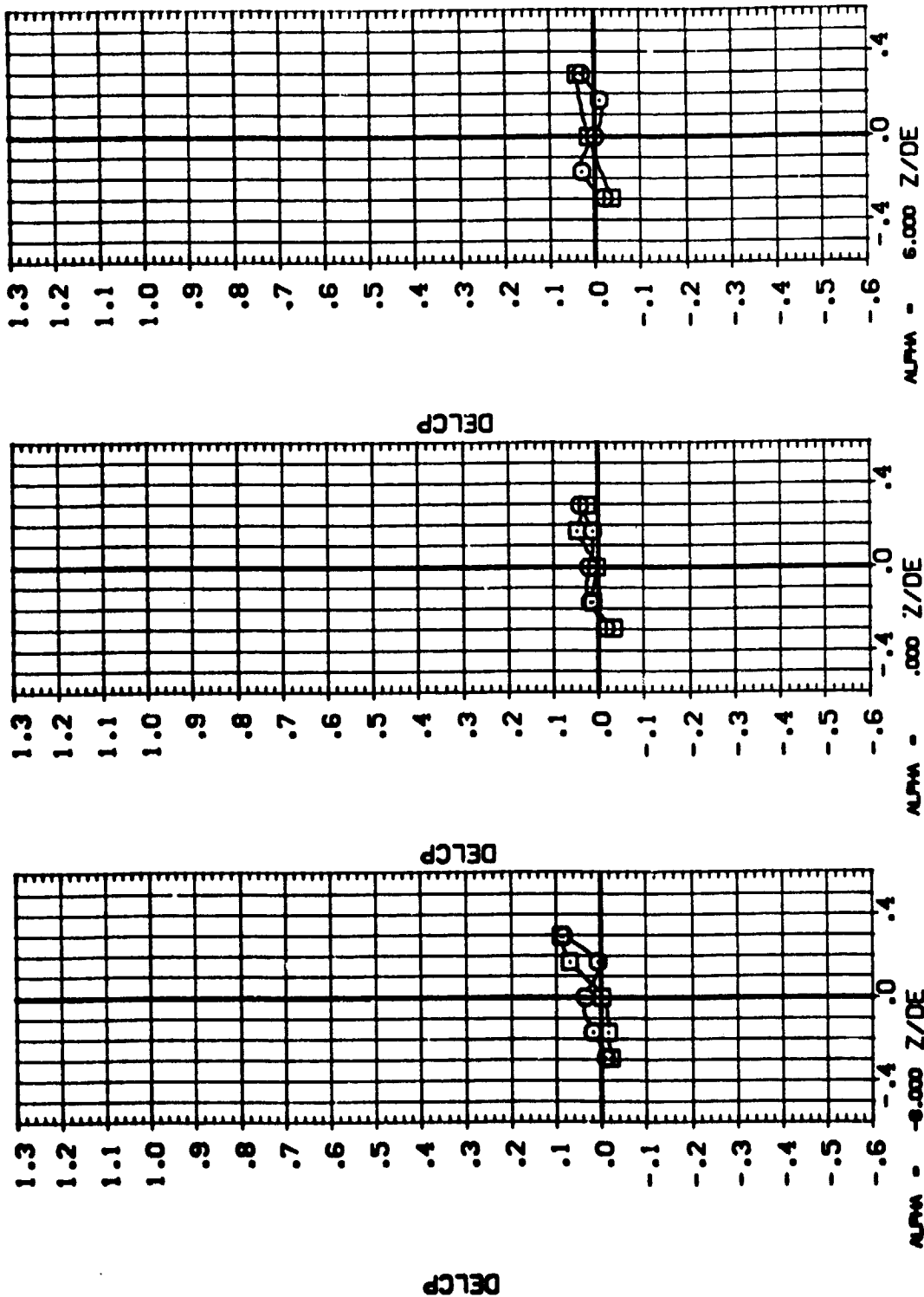
MACH = 1.200 X/DE = .580





DATA SET SYMBOL: 8  
CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 Q2 + T1 + S1 UPPER MPS NOZZLE  
[8,5,4,05] CAL T14-053 IAS6 Q2 + T1 + S1 UPPER MPS NOZZLE  
[8,5,4,07]

BETA	POWER	OPR	SPRKR
.000	.000	28.310	2.000
.000	1.000		



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .754

DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 (SUFAD7) CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

SEWER

OPR

POWER

BETA

UPPER MPS NOZZLE

UPPER MPS NOZZLE

SEWER

2.020

28.310

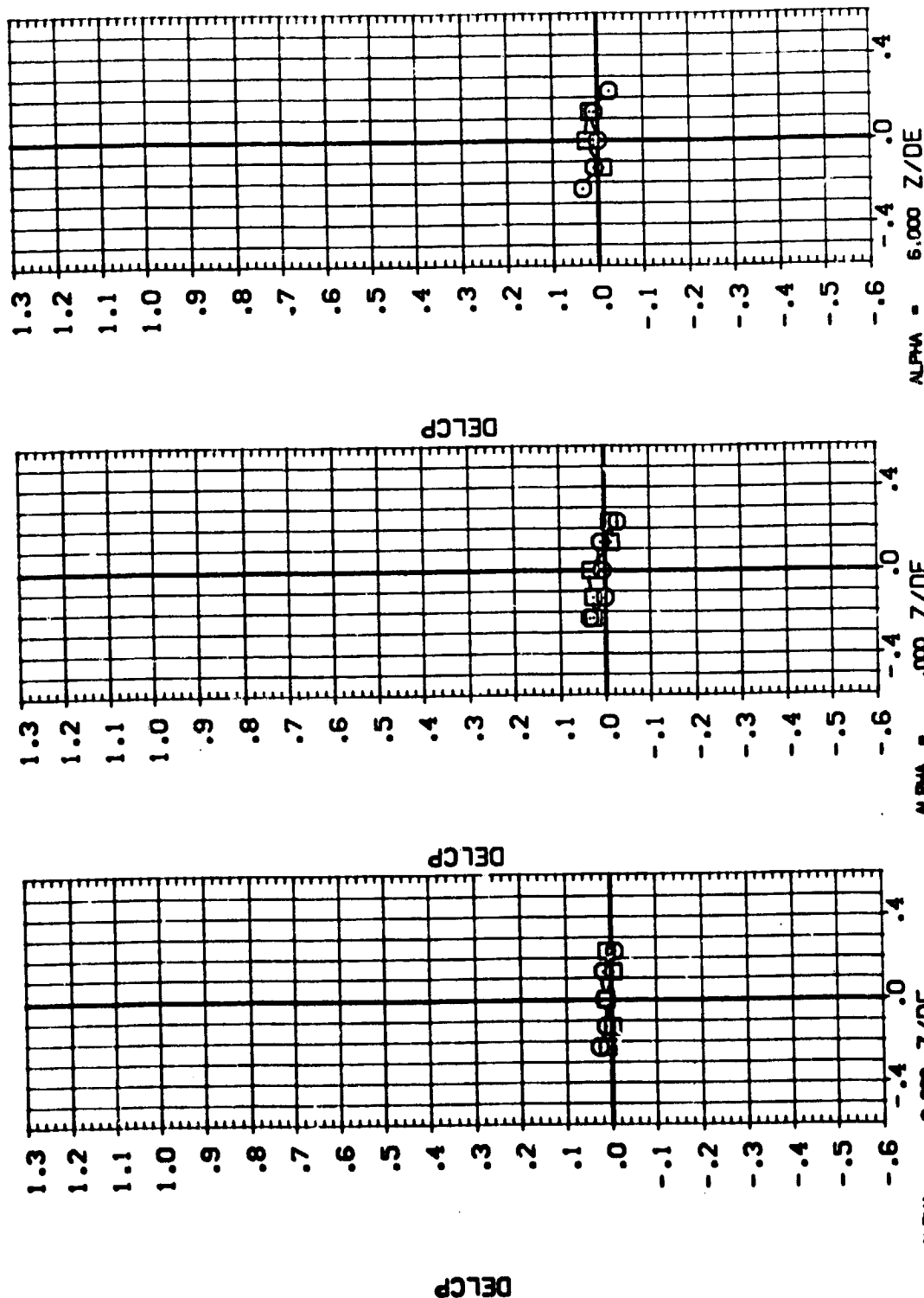
1.000

.000

1.000

1.000

2.020

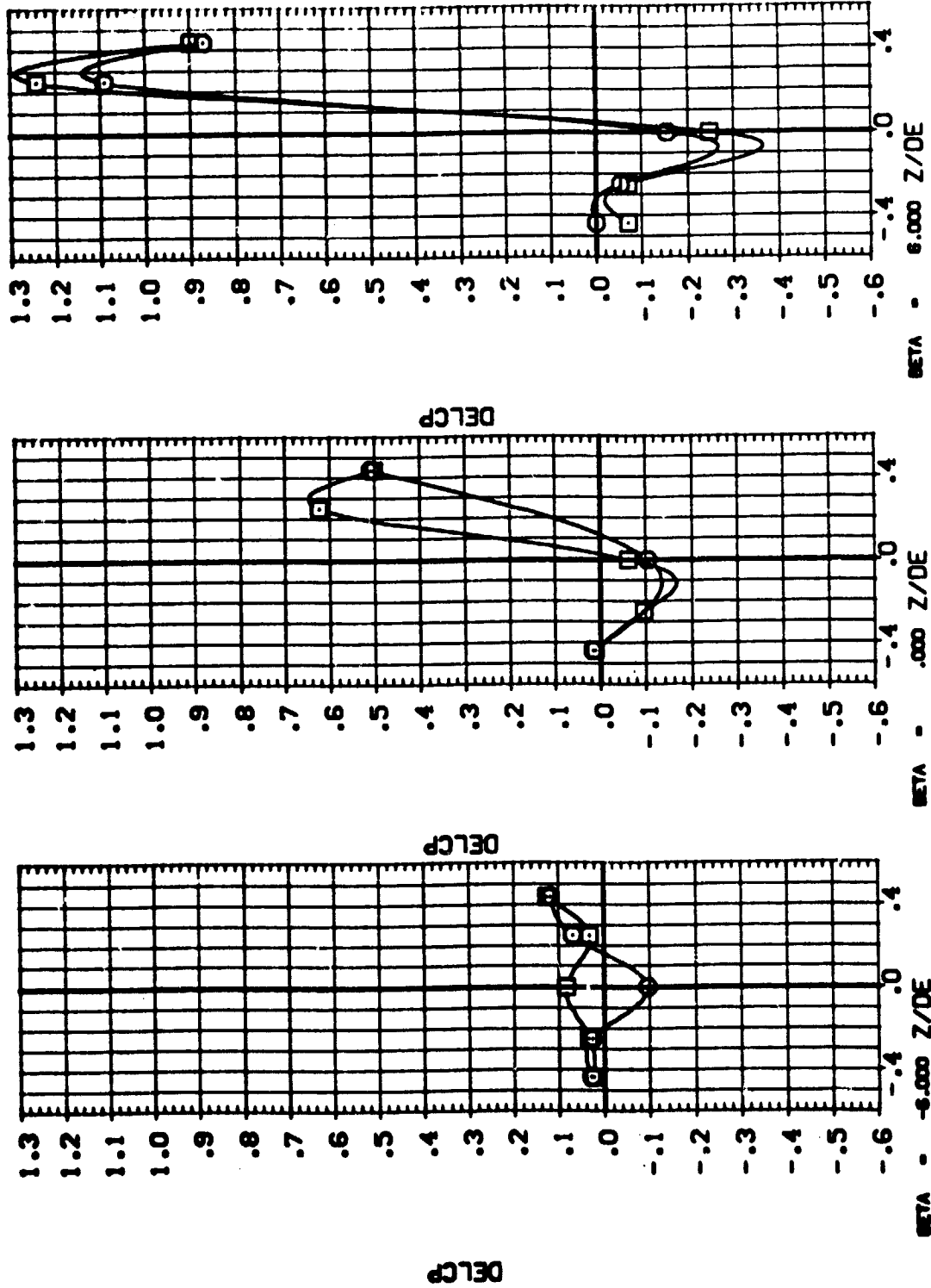


DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .928



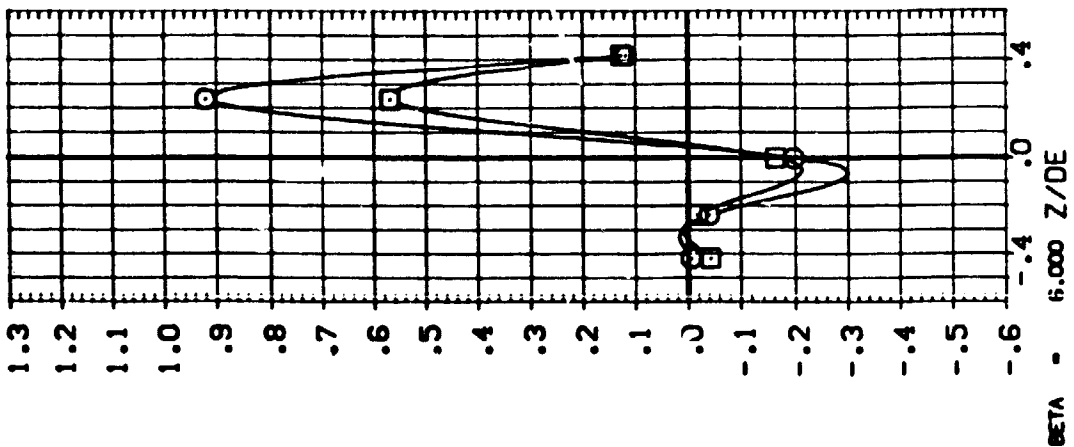
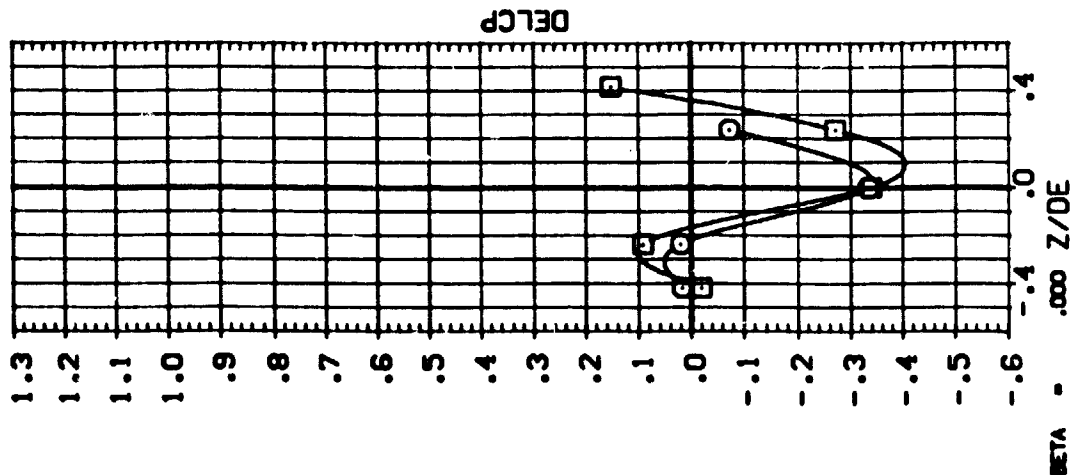
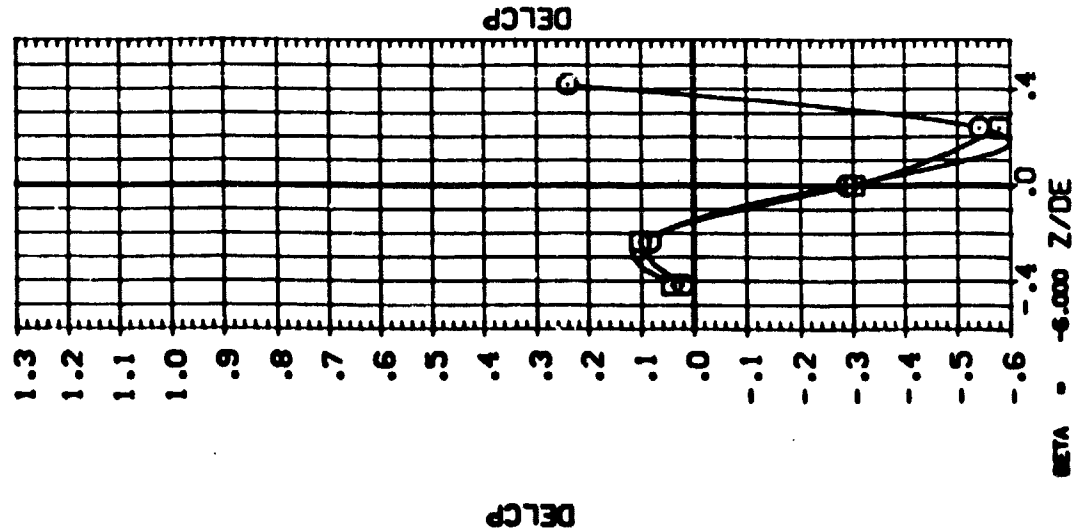
DATA SET SHED. CONFIGURATION DESCRIPTION ALPHA POWER CPR SPRR  
(9LF408) 8 CAL T14-053 IAS6 02 : T1 : S1 UPPER MPS NOZZLE .000 .000 28.310 2.000  
(9LF408) 8 CAL T14-053 IAS6 02 : T1 : S1 UPPER MPS NOZZLE .000 1.000



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: **CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE** **8** ALPHA: **.000** POWER: **.000** DFR: **28.310** SFRFR: **2.020**  
 (SURFACES) **8** CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE



# DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET 0000. CONFIGURATION DESCRIPTION  
 { 000000 } 0 CAL 111-000 1130 02 : 11 : 01 UPPER MPS NOZZLE  
 { 000000 } 0 CAL 111-000 1130 02 : 11 : 01 UPPER MPS NOZZLE

POWER

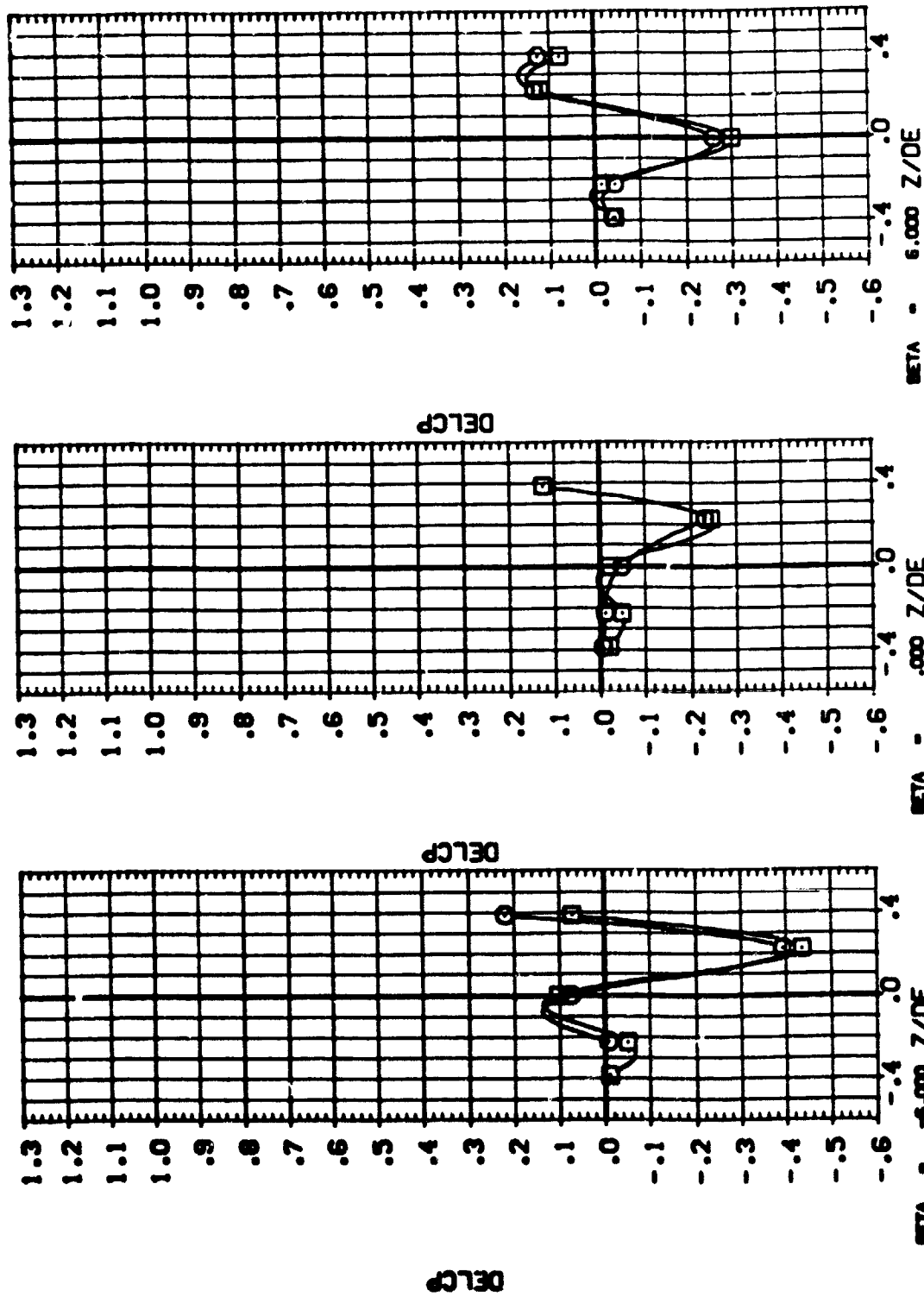
0.000

0.000

0.000

28.310

2.000



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

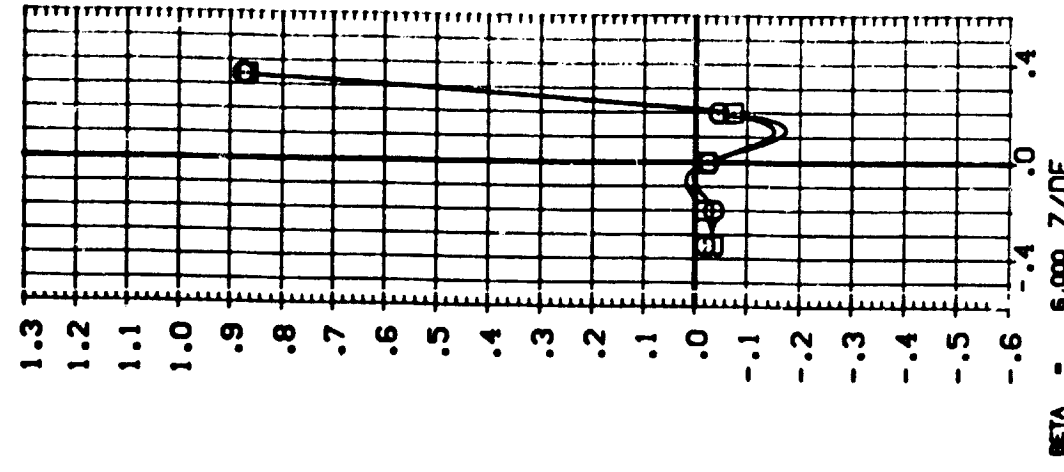
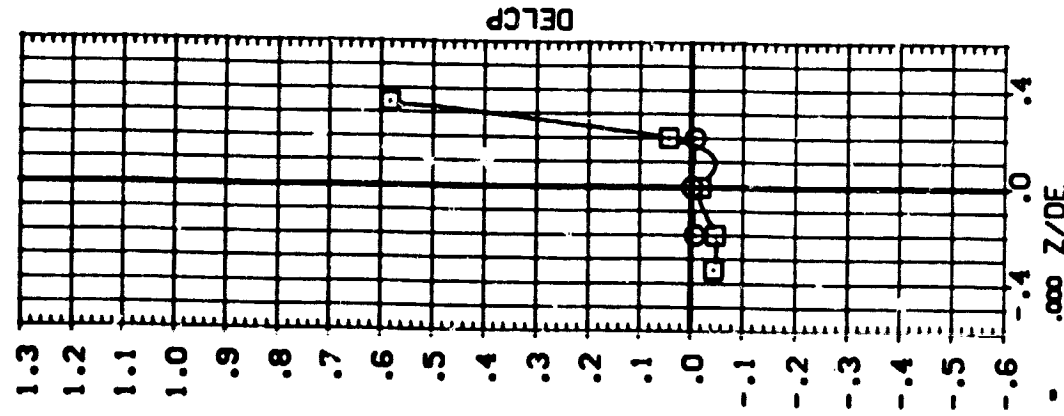
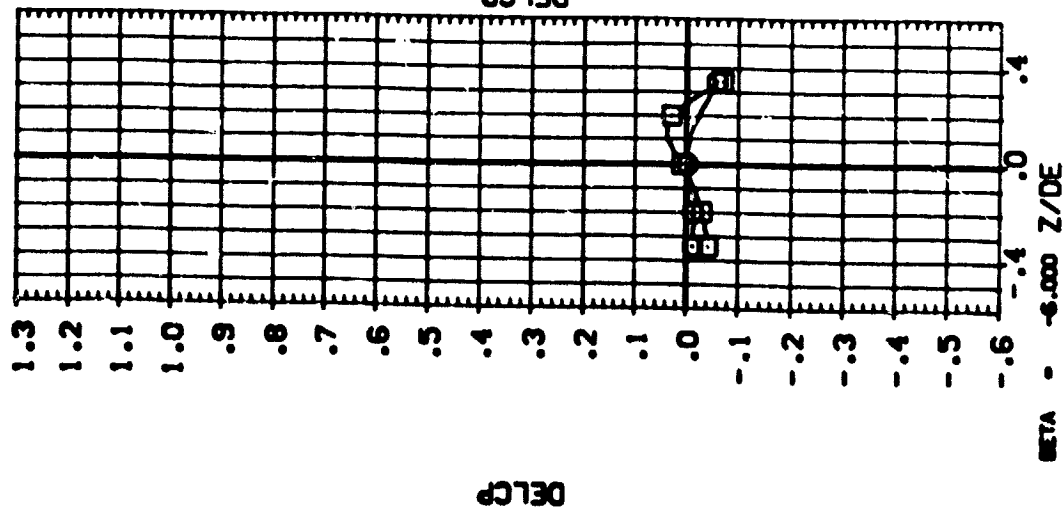
MACH = 1.200 X/DE = .406

DATA SET SWED. CONFIGURATION DESCRIPTION

(SURFACES)

8 CAL T14-053 IASZ 02 + T1 + S1 UPPER MPS NOZZLE

ALPHA POWER CTR SWPR  
.000 .000 28.310 2.020



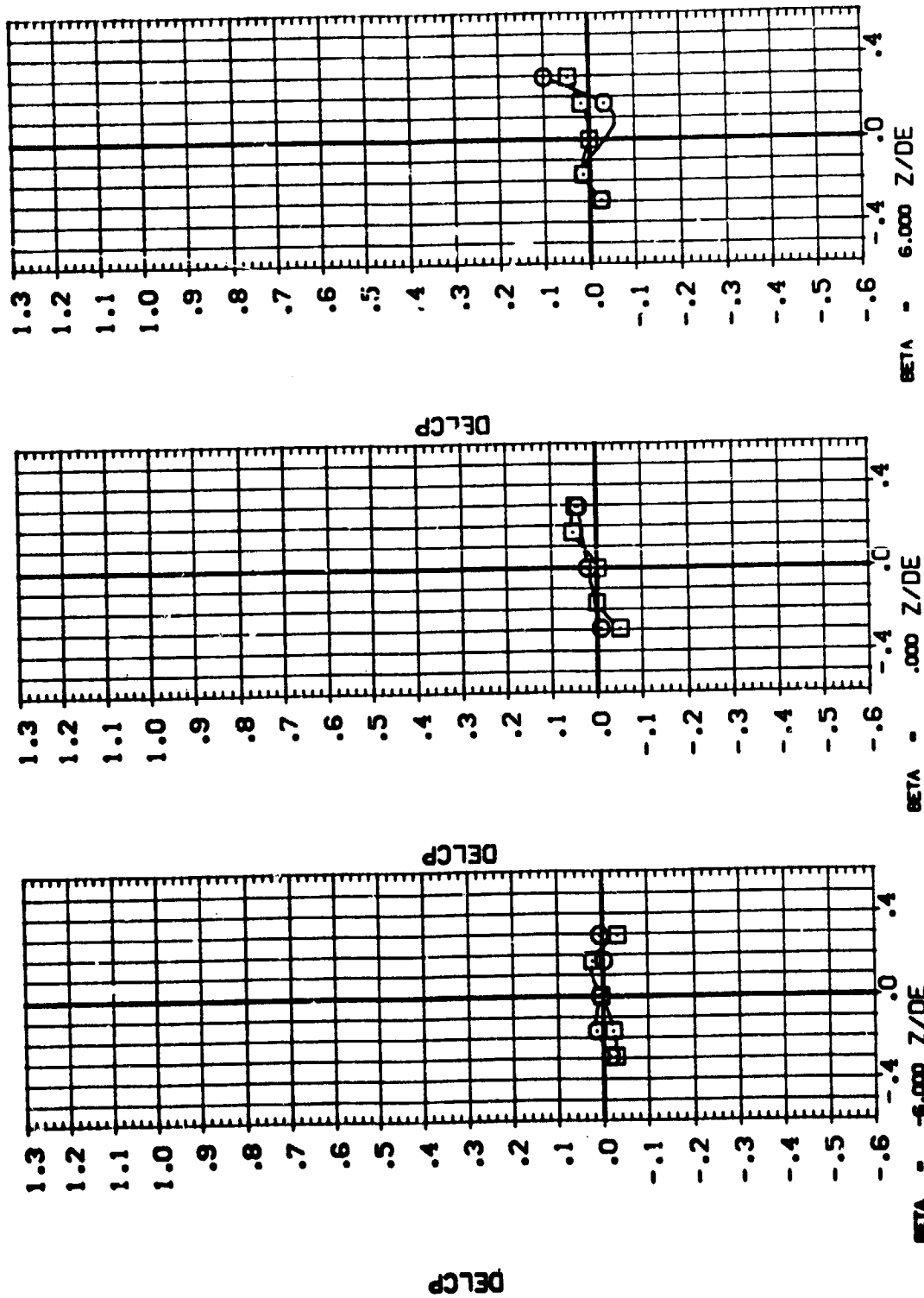
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .580



DATA SET SYMBOL: CAL 114-053 1/36 02 + 11 + S1 UPPER MPS NOZZLE  
(SUFACS) B CAL 114-053 1/36 02 + 11 + S1 UPPER MPS NOZZLE

ALPHA	POWER	OPR	SWPR
.000	.000	28.310	2.020



DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

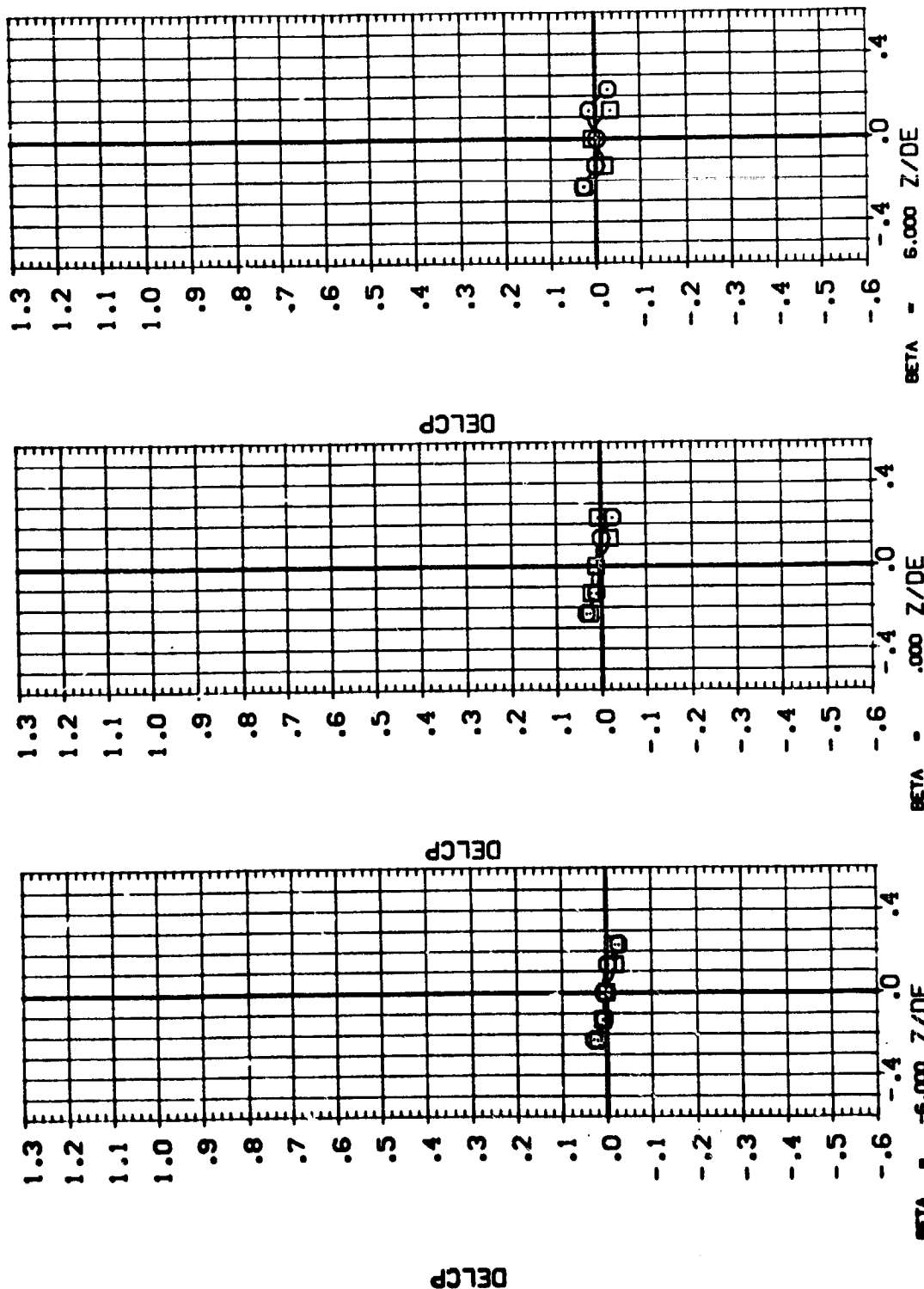
MACH = 1.200 X/DE = .754

DATA SET SYMBOL: CAL T14-053 (A36 02 + T1 + S1) UPPER MPS NOZZLE  
 (SUFAC08) CAL T14-053 (A36 02 + T1 + S1) UPPER MPS NOZZLE

ALPHA: .000 POWER: .000

OPR: 28.310

SRPR: 2.020



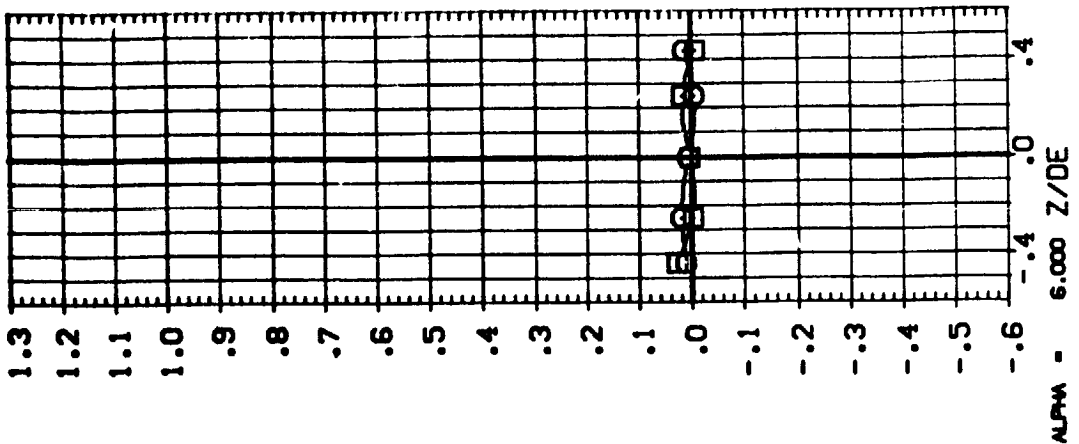
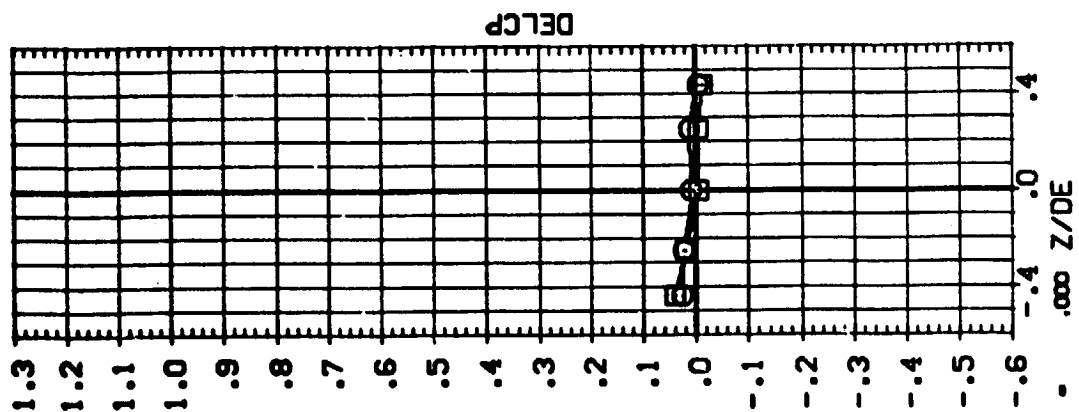
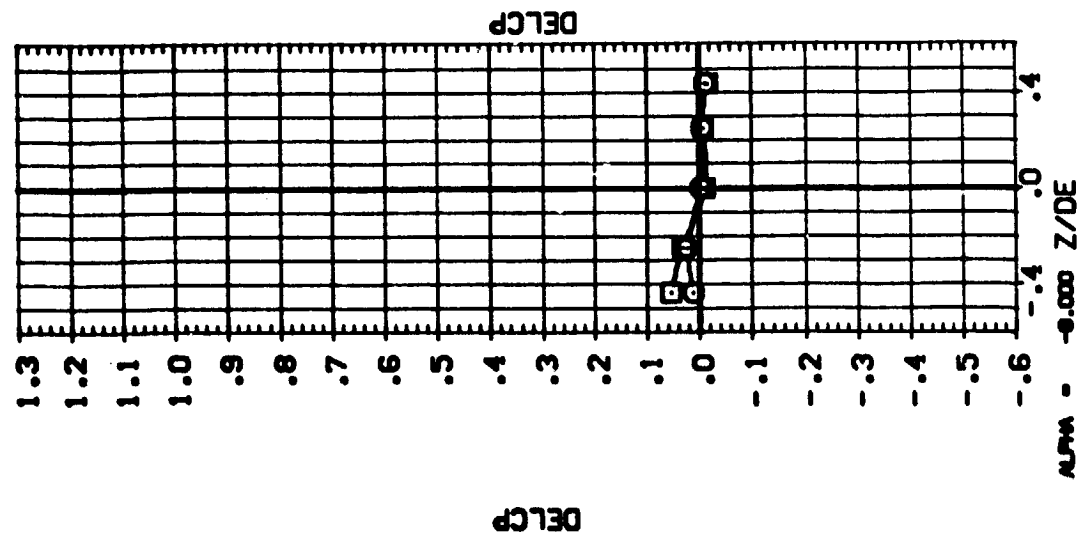
DELTA PRESSURE DISTRIBUTION, UPPER MPS NOZZLE

MACH = 1.200 X/DE = .928





DATA SET SYMBOL: CONF/IGLATION DESCRIPTION: BETA POWER CDR SWPR  
 (9U7801) CAL 114-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: .000 .000 36.200 2.330  
 (9U7803) CAL 114-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: .000 .000 1.000 1.000



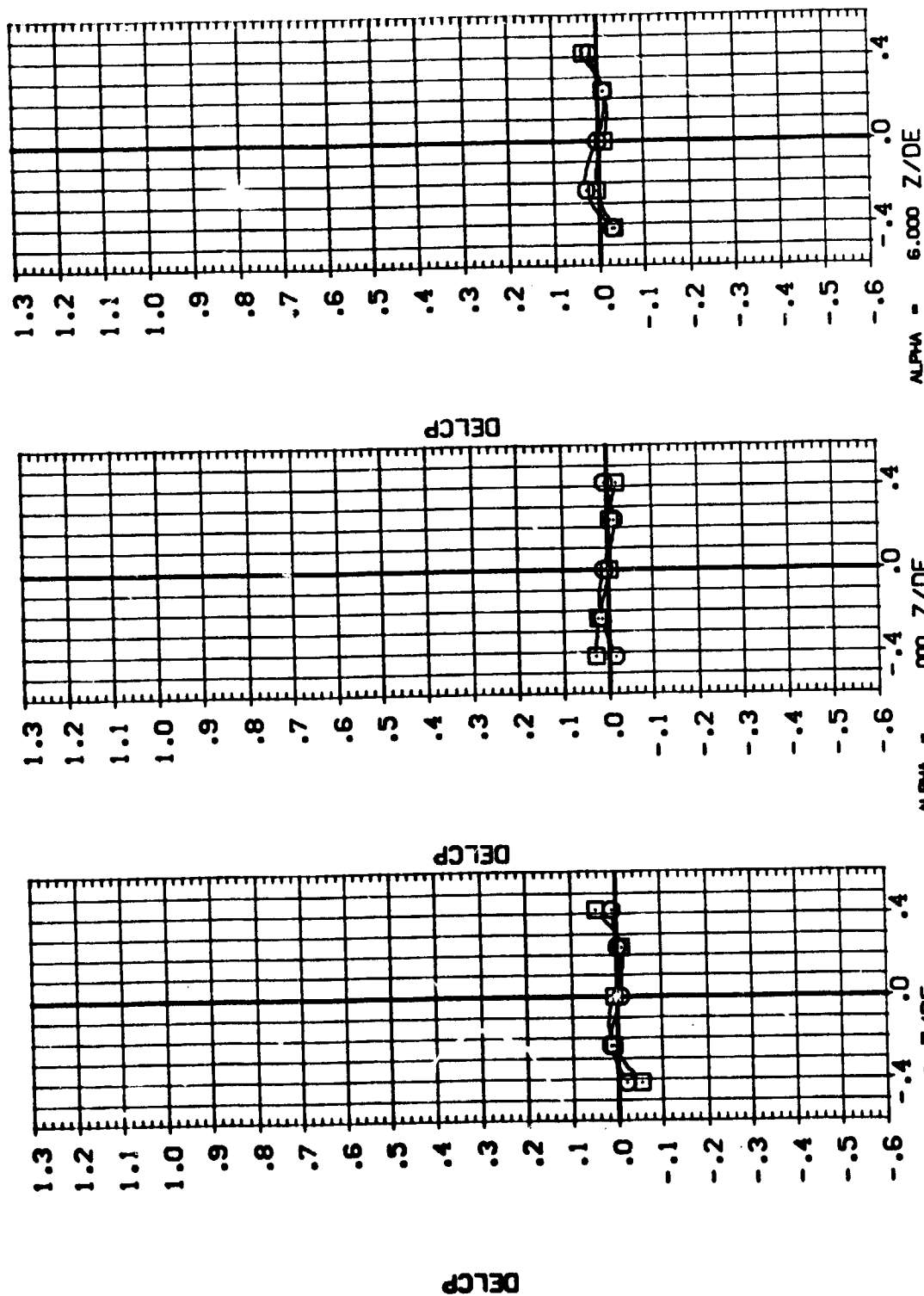
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .058



DATA SET SYMBOL: CAL T14-053 (A36 02 + T1 + S1) LOWER LH MPS NOZ:  
 (SUF801)  
 (SUF803)

BETA: .000  
 POWER: .000  
 DPR: 36.200  
 SRPR: 2.300



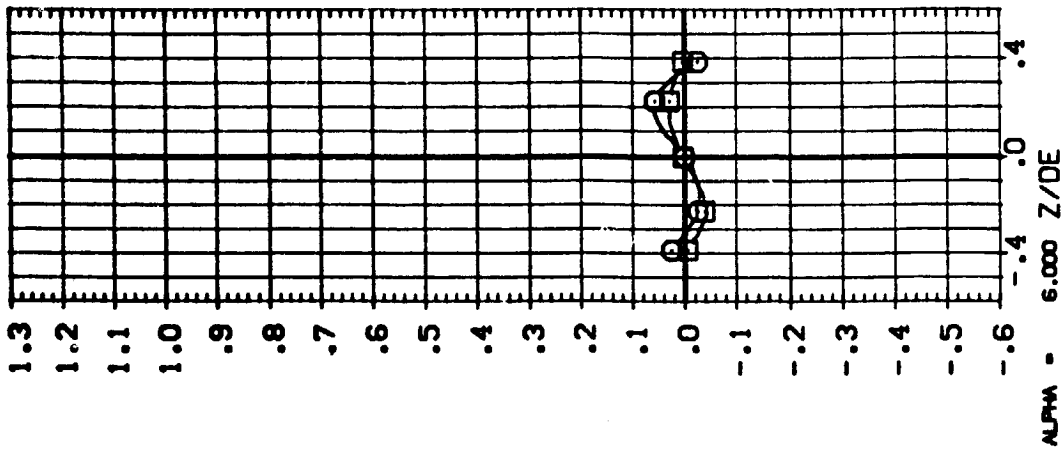
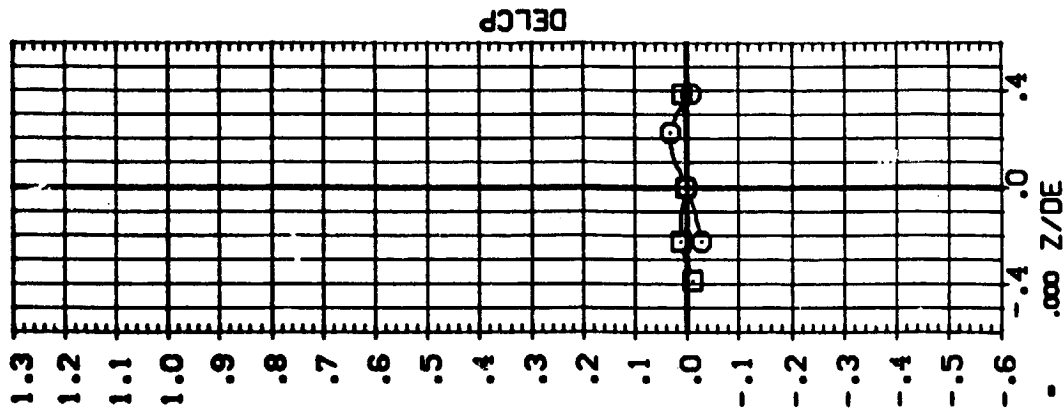
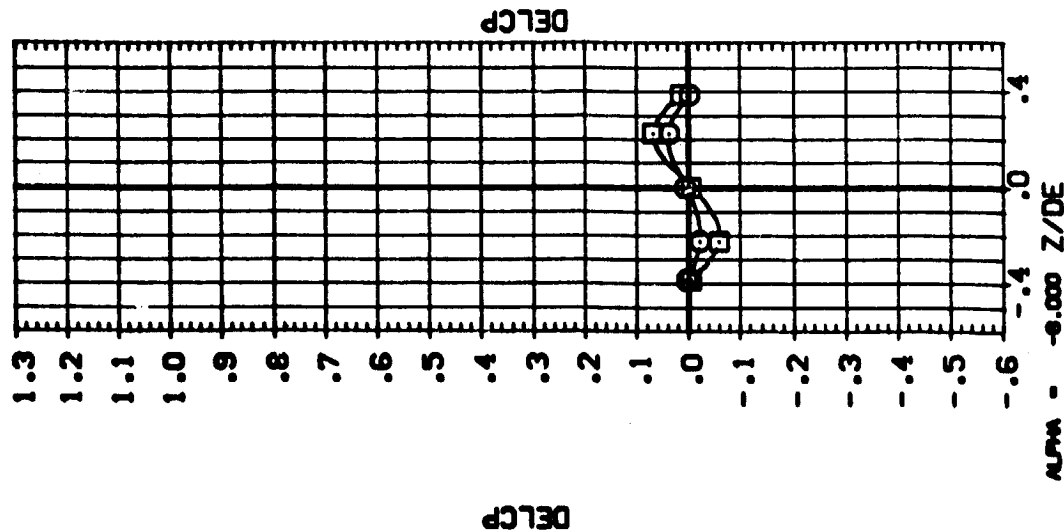
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .232



DATA SET SYMBOL: 8  
 CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.

BETA .000  
 POWER .000  
 DPR 36.200  
 SVRPR 2.300



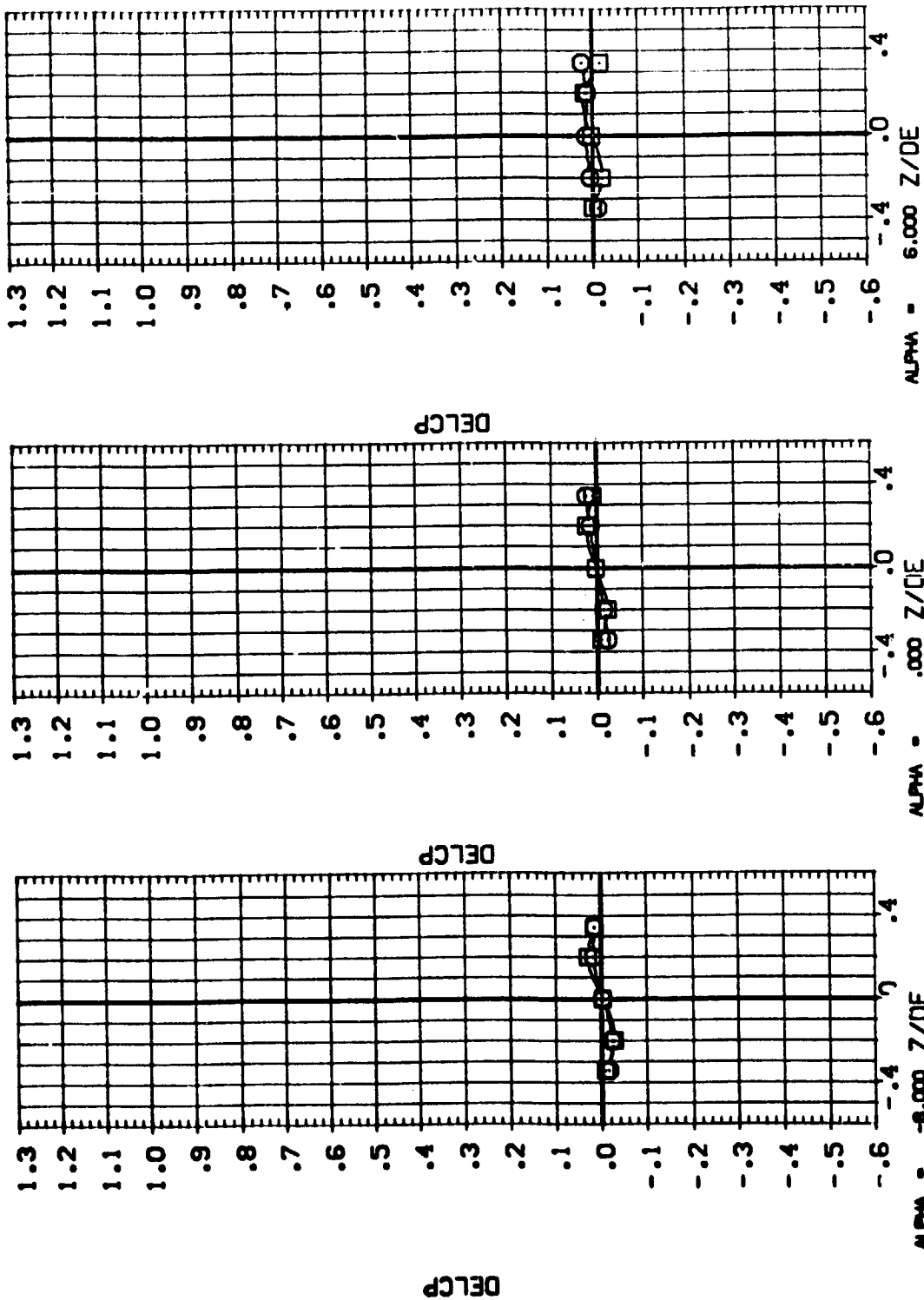
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: 8  
 (SUF801)  
 (SUF803)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 O2 + T1 + S1 LOWER LH MPS NOZ.  
 CAL T14-053 IAS6 O2 + T1 + S1 LOWER LH MPS NOZ.

BETA: .000  
 POWER: .000  
 DPR: 36.200  
 SMFR: 2.330



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

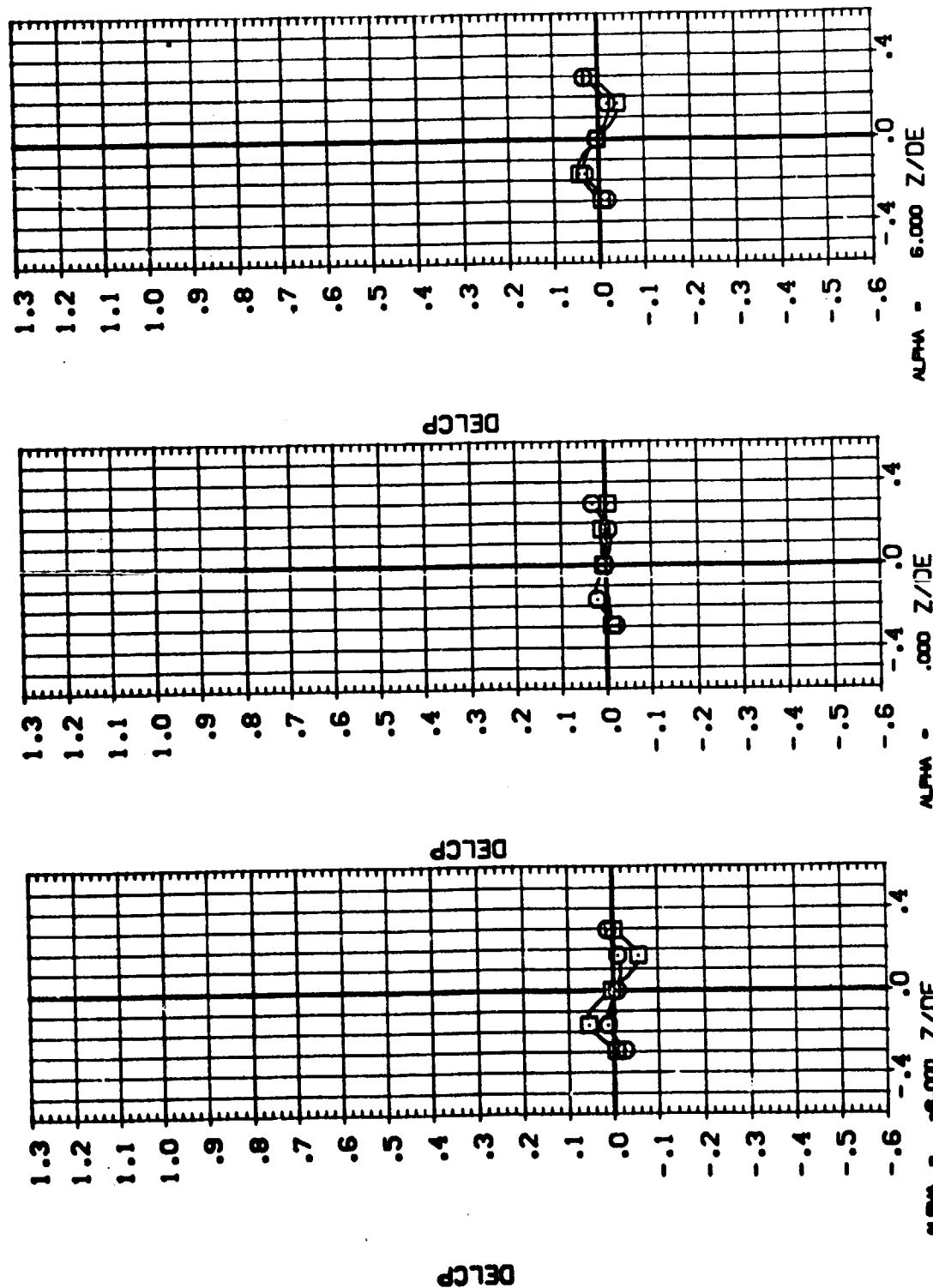
MACH = .900 X/DE = .580



DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ:  
 (9UF801) B CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ:  
 (9UF803)

CONFIGURATION DESCRIPTION

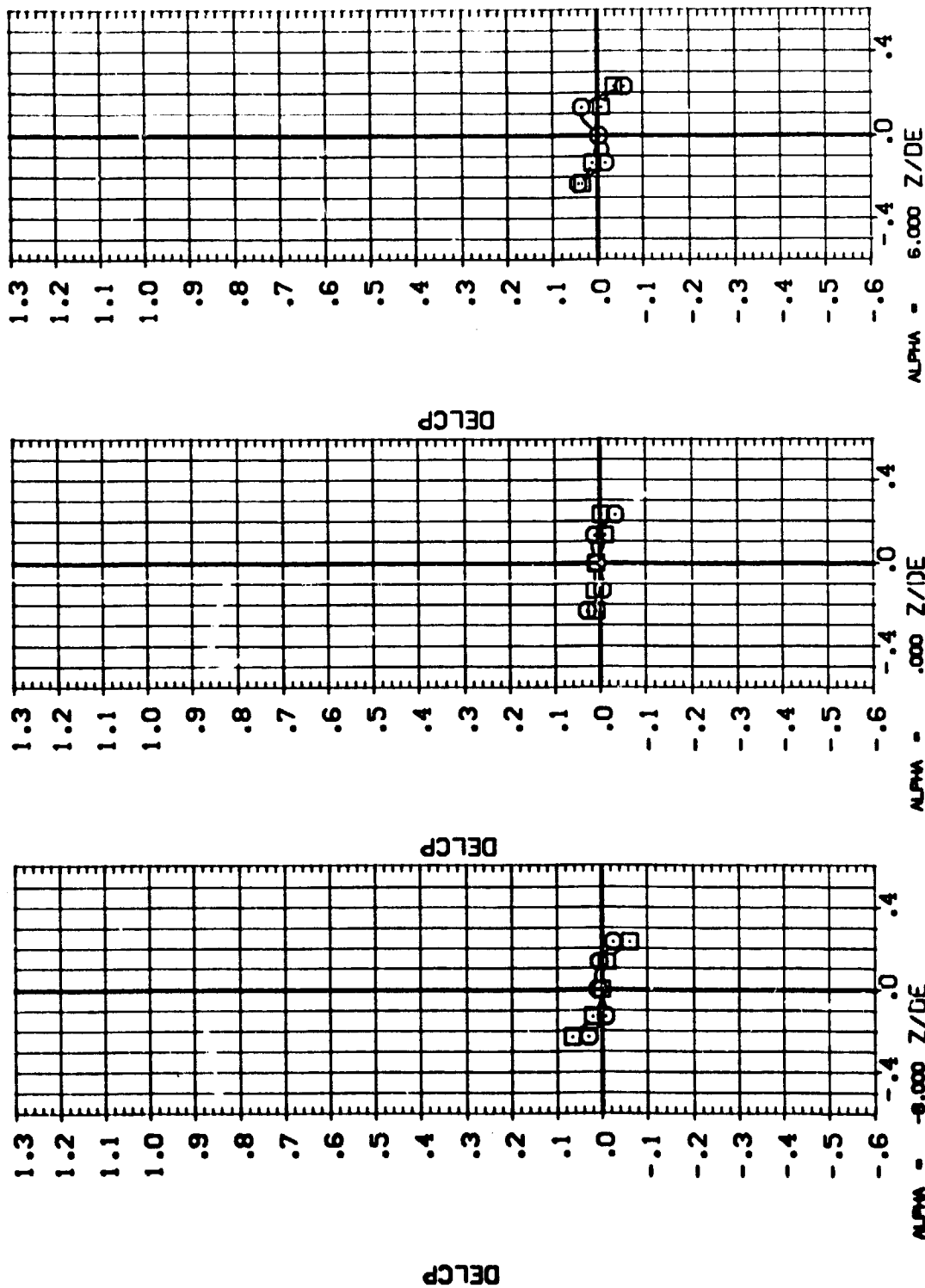
BETA: .000 POWER: .000 SFR: 36.200 SFRFR: 2.330



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL: (SUF801) (SUF803) CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: BETA: .000 .000 POWER: .000 .000 DFR: 36.200 SRFR: 2.330



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

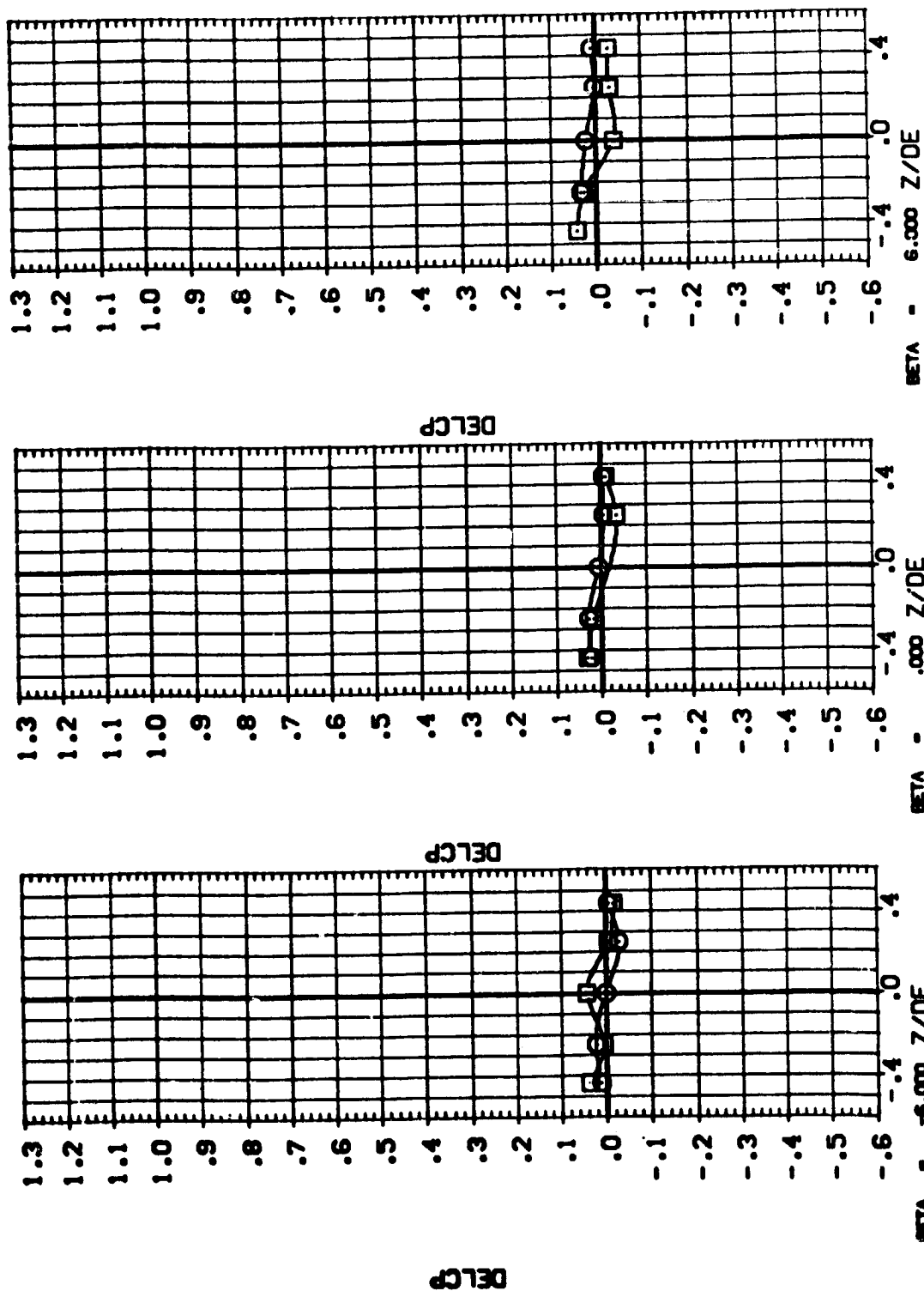
MACH = .900 X/DE = .928



# DATA SET SYMBOL CONFIGURATION DESCRIPTION

(SUB02) CAL 114-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.  
 (SUB04) CAL 114-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.

ALPHA .000 .000  
 POWER 1.000 1.000  
 CDR 36.200  
 SWPR 2.330

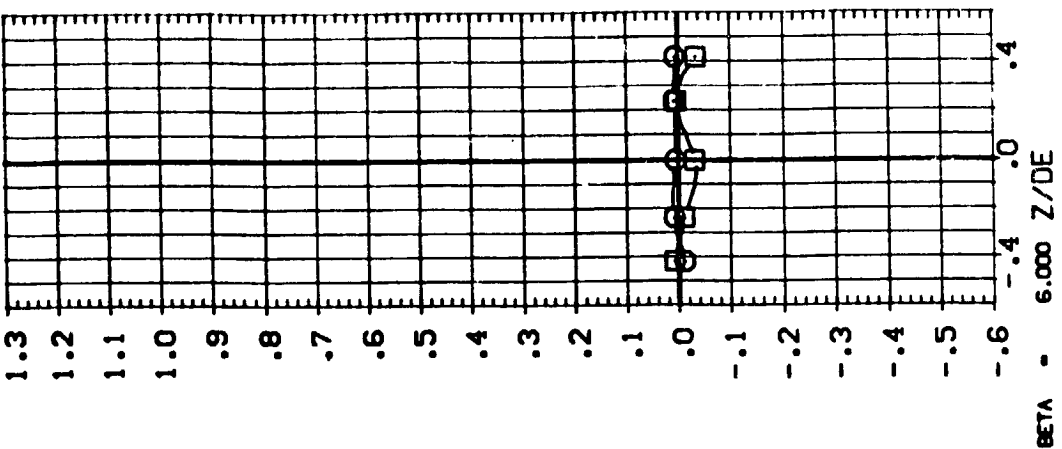
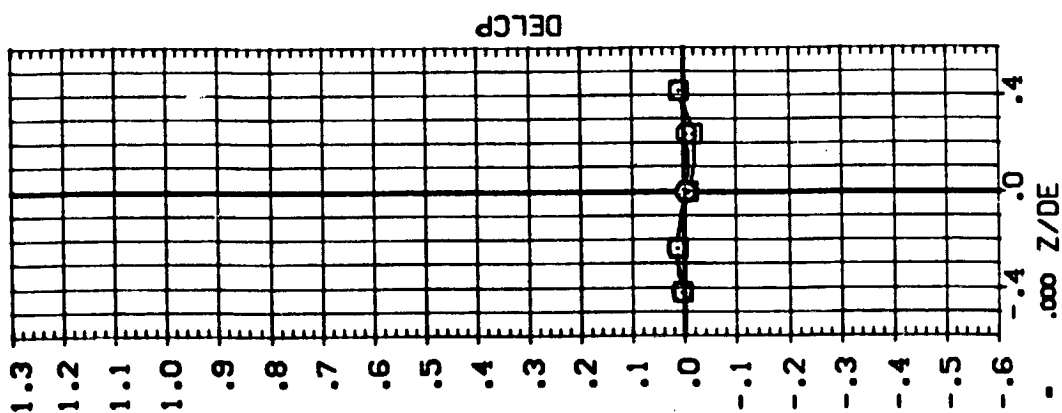
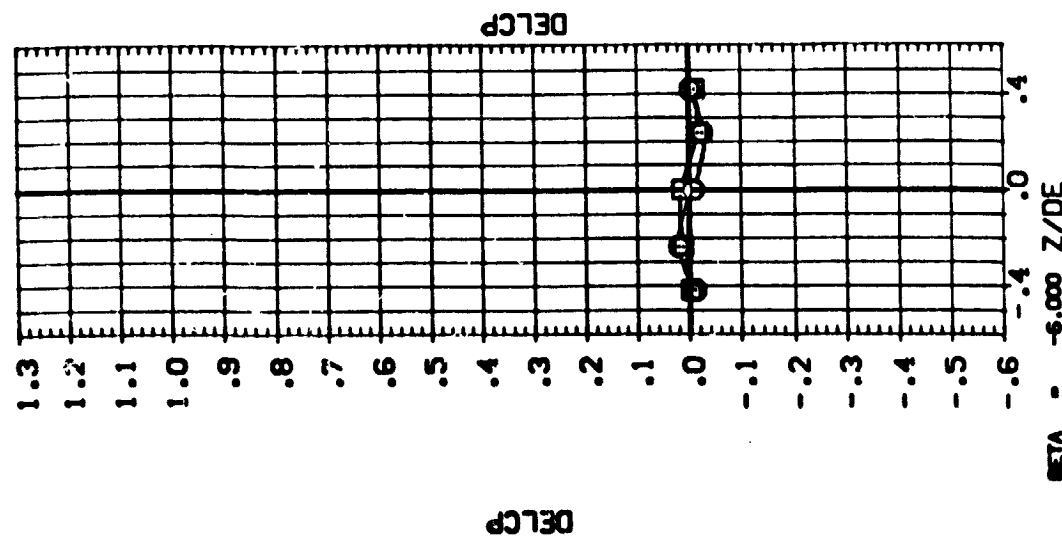


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T114-053 IAS6 QZ + T1 + S1 LOWER LH MPS NOZ.  
 (SUBFO2) CAL T114-053 IAS6 QZ + T1 + S1 LOWER LH MPS NOZ.  
 (SUBFO4)

ALPHA .000 POWER .000 CDR 36.200 SRPR 2.300



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .232

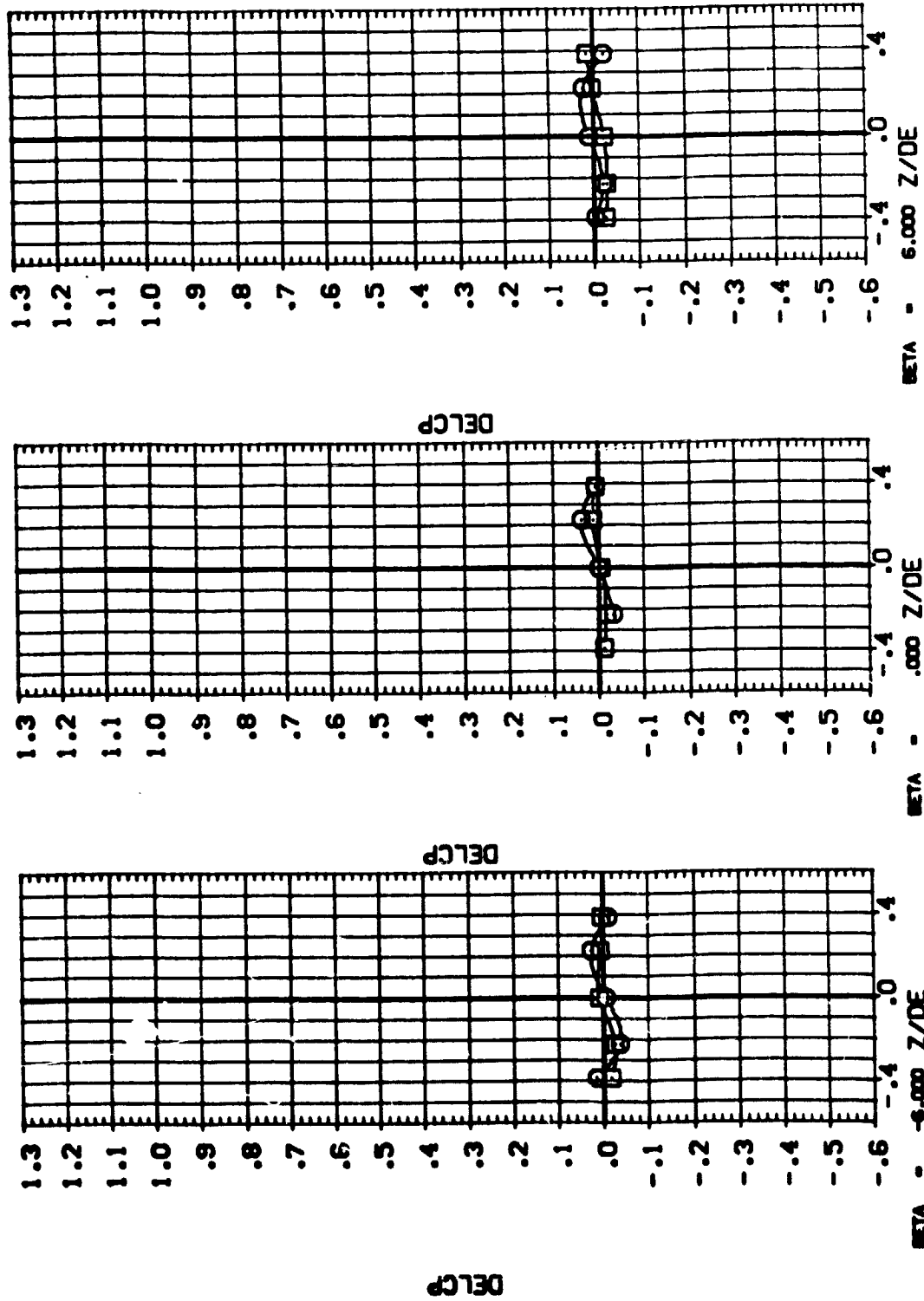




DATA SET SYMBOL CONFIGURATION DESCRIPTION

(SUF002) CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.  
(SUF004) CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.

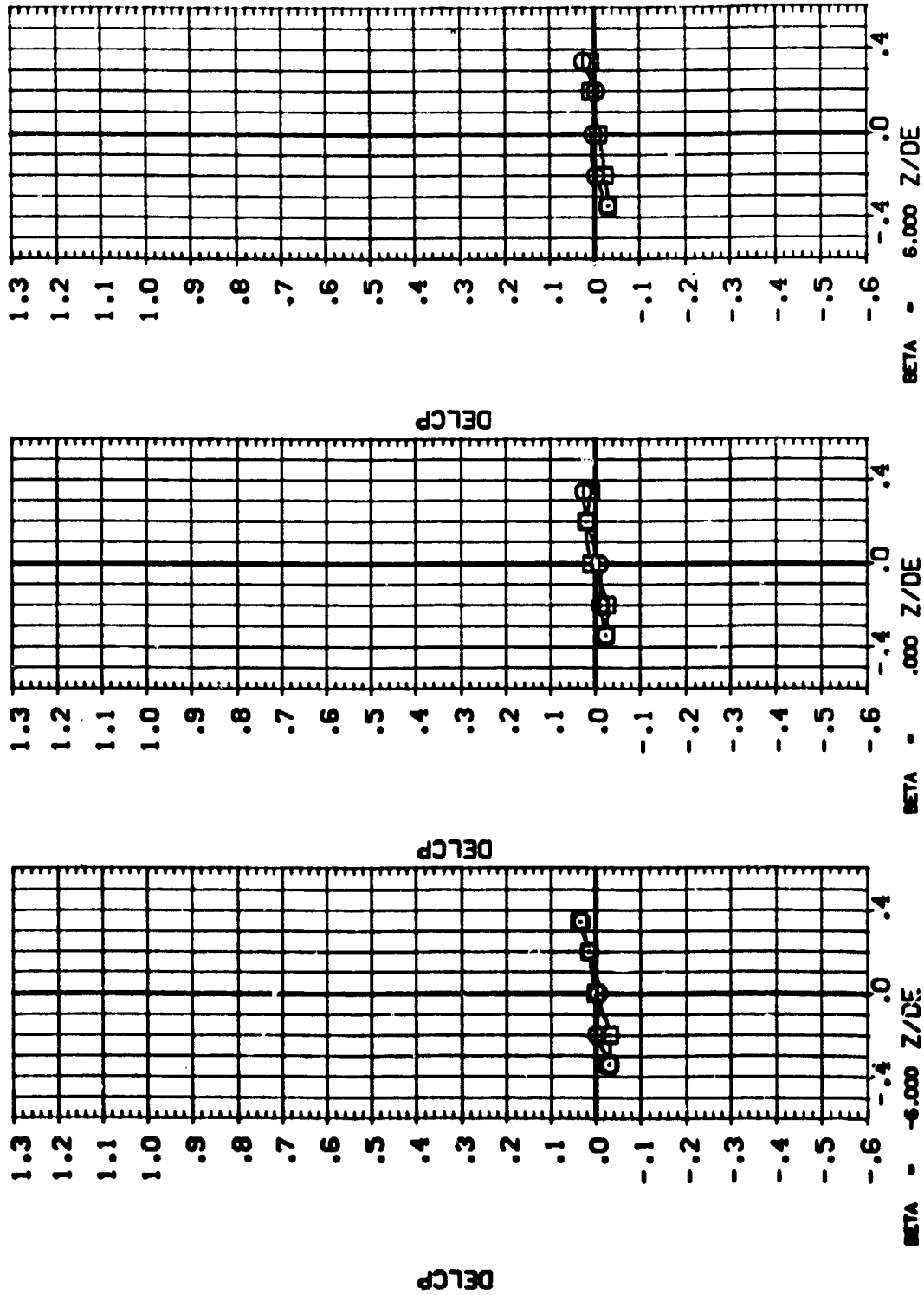
ALPHA POWER C/P S/PFR  
.000 1.000 36.200 2.330



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: ALPHA POWER DFR SFR 2.330  
 (SUPERSONIC) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: .000 .000 36.200



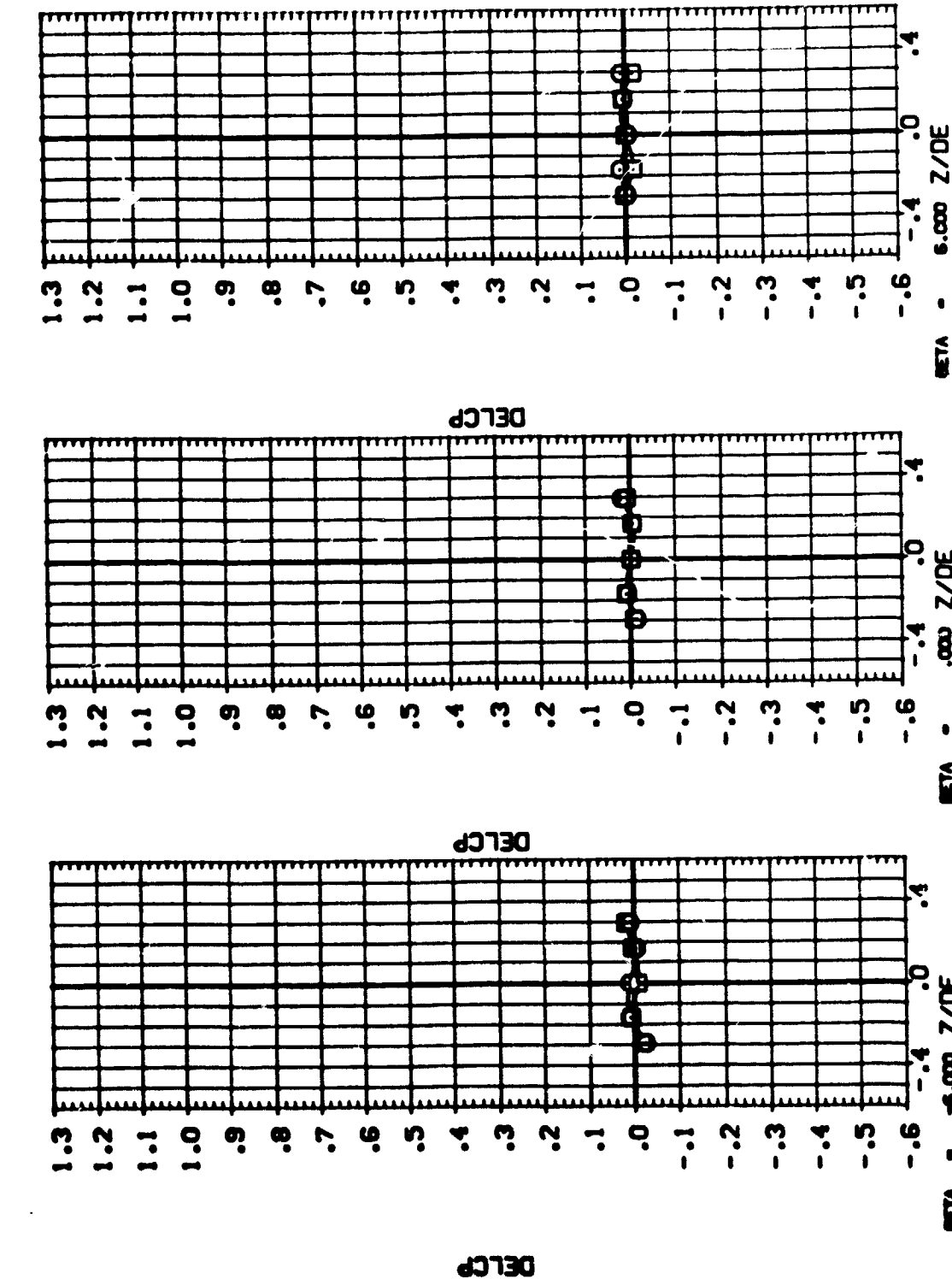
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .580 PAGE 250



DATA SET SYNO. CONFIGURATION DESCRIPTION  
(SUBSET) 8 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.  
(SUBSET) 8 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.

ALPHA POWER CTR SWPR  
.000 .000  
.000 1.000 36.200 2.300



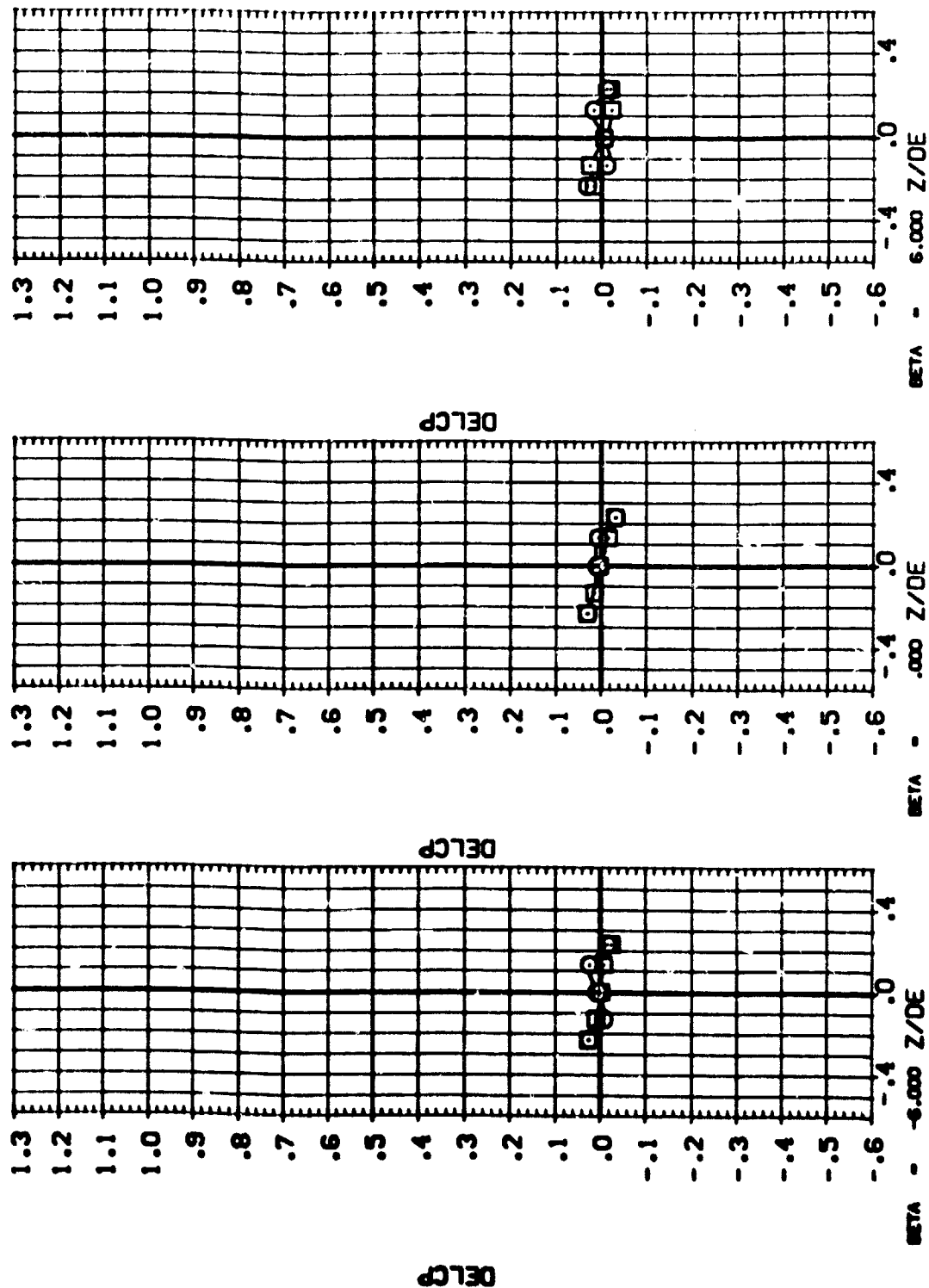
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    POWER    DPR    SPRR

(SUPER2)    CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ :    .000    .000    1.000    36.200    2.330

(SUPER04)    CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ :    .000    .000    1.000    36.200    2.330



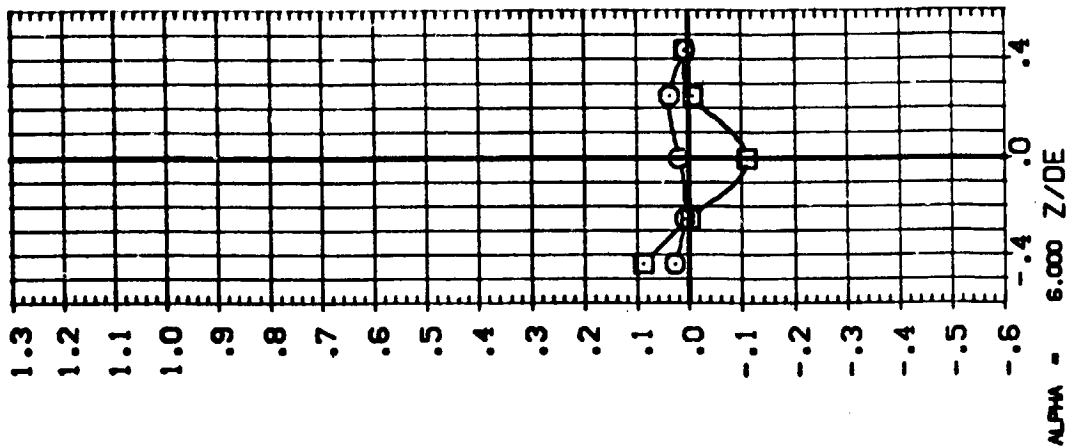
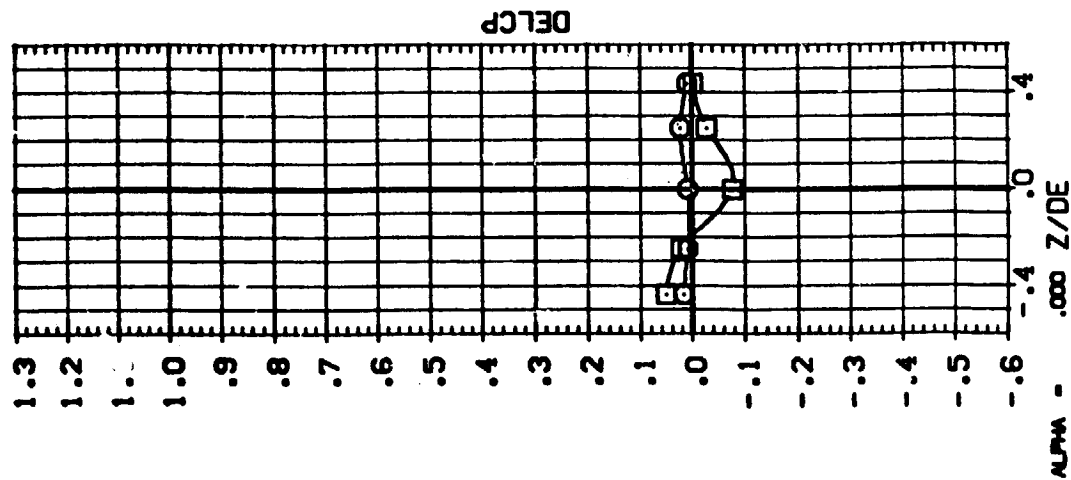
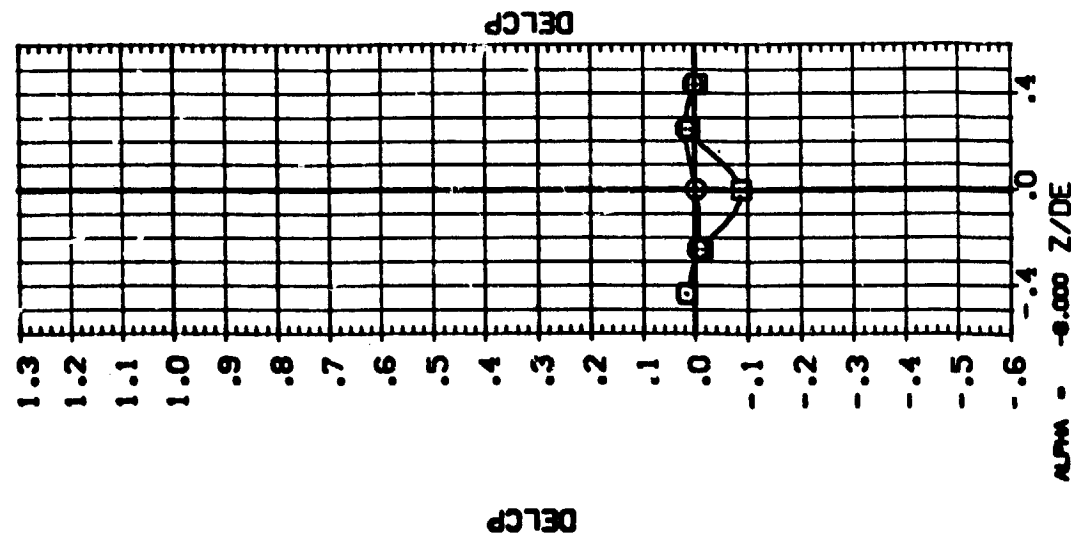
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL: CAL 114-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:  
(SUF805) ☐ CAL 114-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ:  
(SUF807)

BETA .000 .000  
POWER 1.000 1.000  
OPR 28.310 2.000  
SWPR

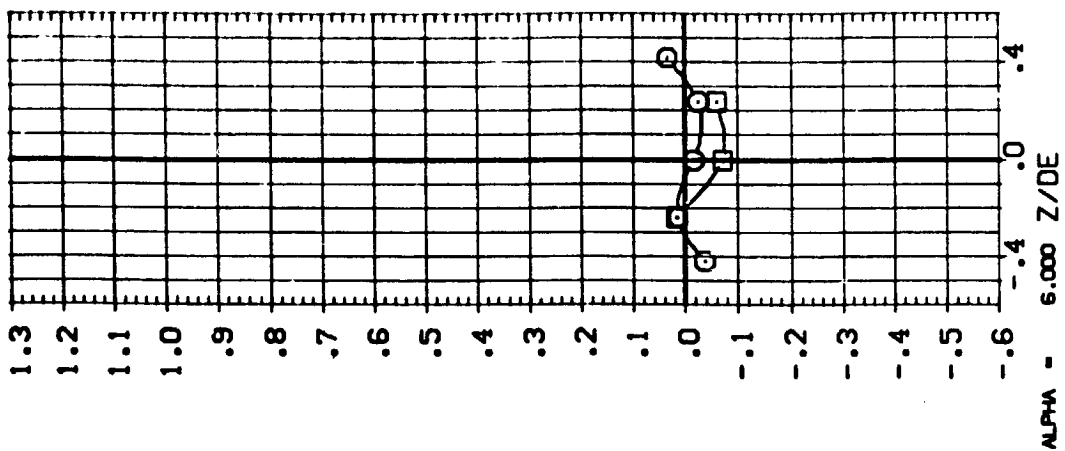
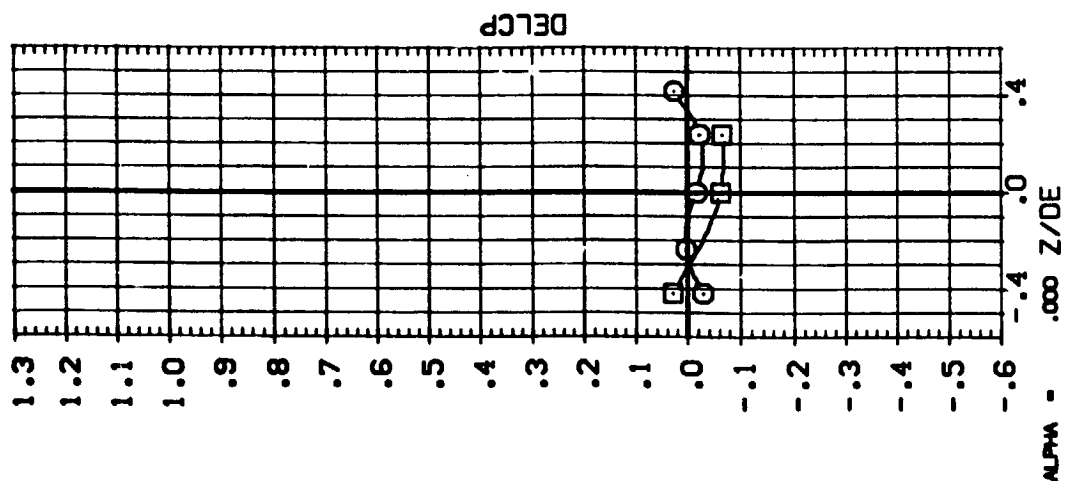
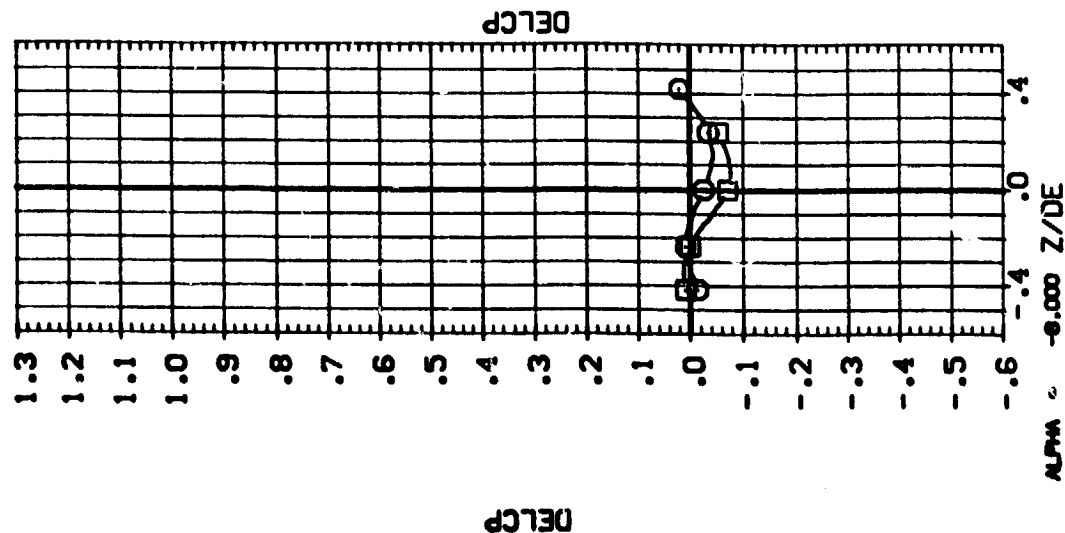


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (SUF805) CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.  
 (SUF807)

BETA: .000  
 POWER: .000  
 DFR: 28.310  
 SRPR: 2.020



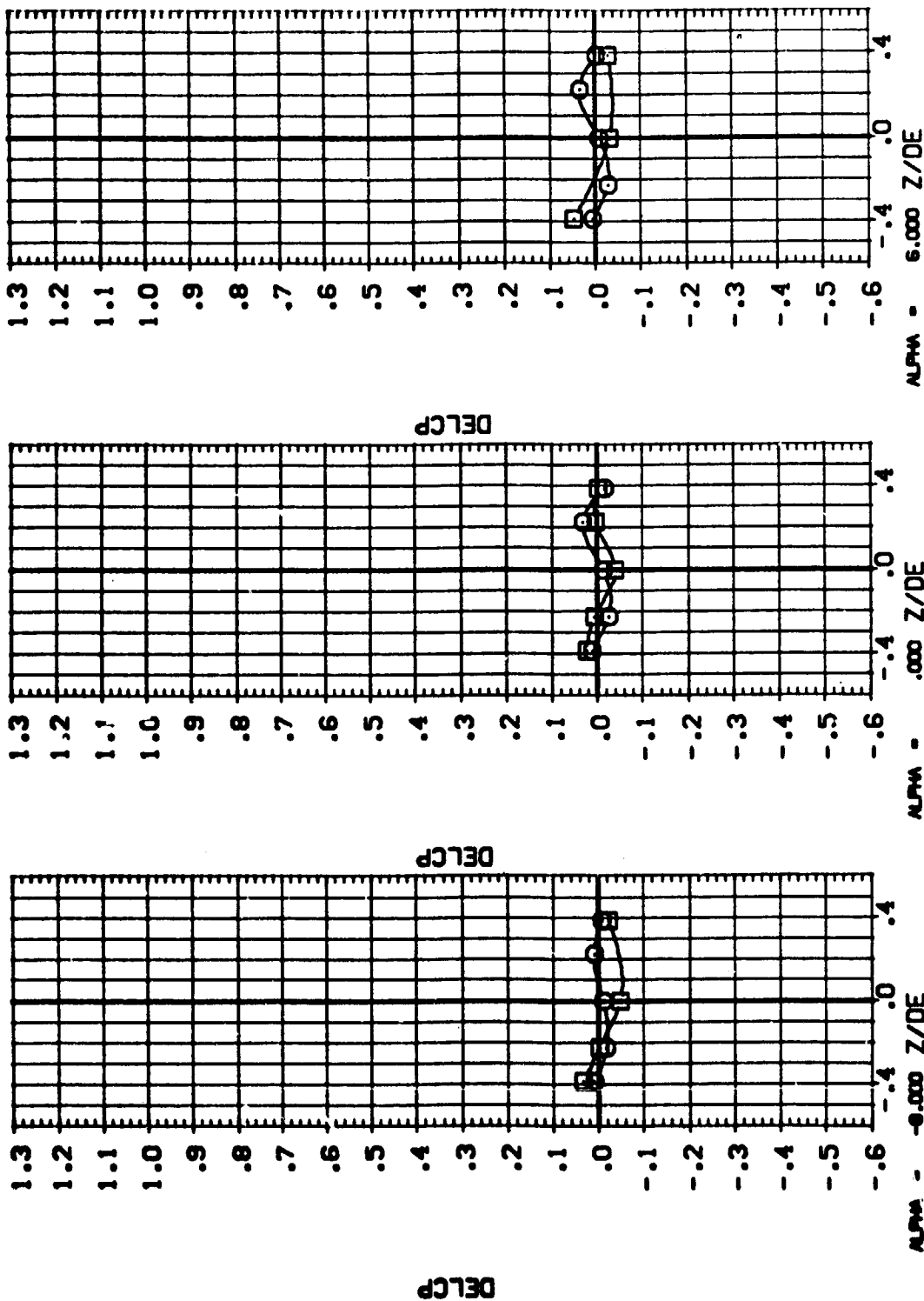
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/OE = .232



DATA SET SYMBOL: CAL 114-053 1A36 02 + 11 + S1 LOWER LH MPS NOZ.  
 (SUF805) (SUF807) BETA: .000 POWER: .000 CTR: 28.310 SNRPR: 2.020

CONFIGURATION DESCRIPTION



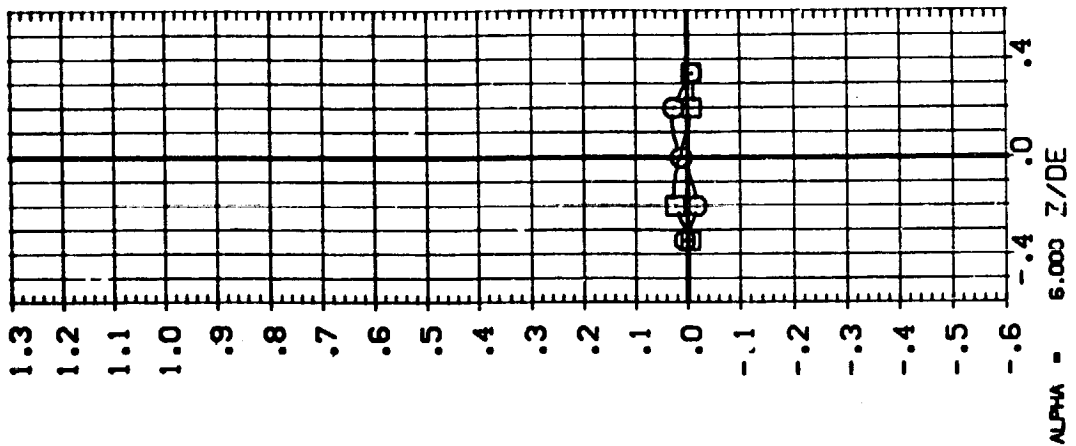
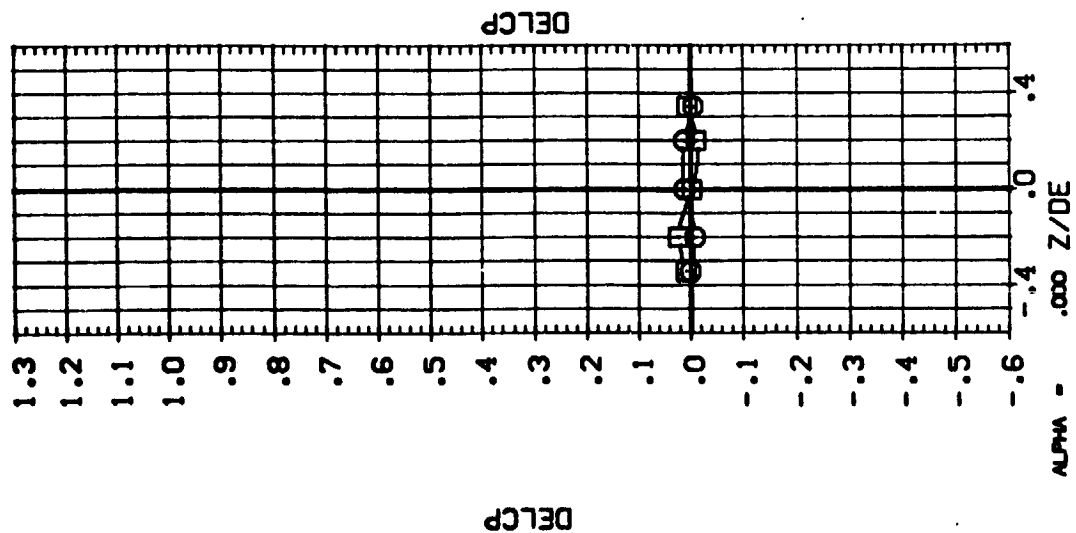
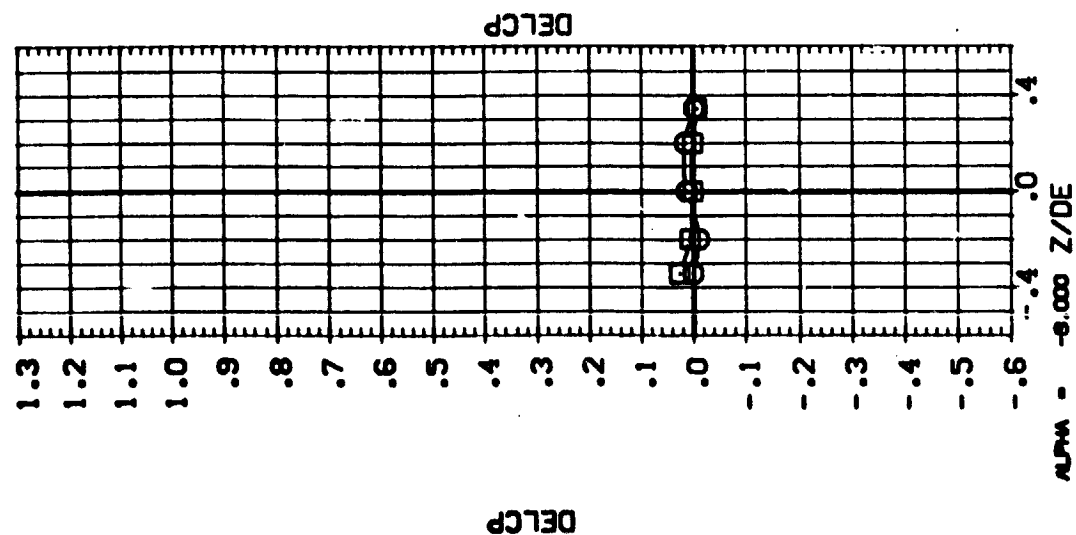
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .406



DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: **CL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.**  
(SUF805) **8** **CL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ.**  
(SUF807)

BETA: .000 POWER: .000 20.310 2.020  
OPR: .000 1.000



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .580

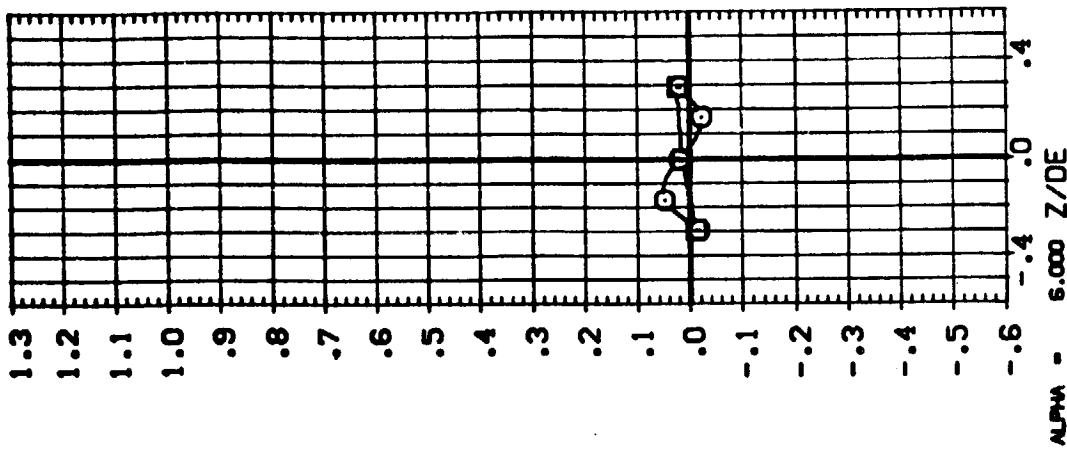
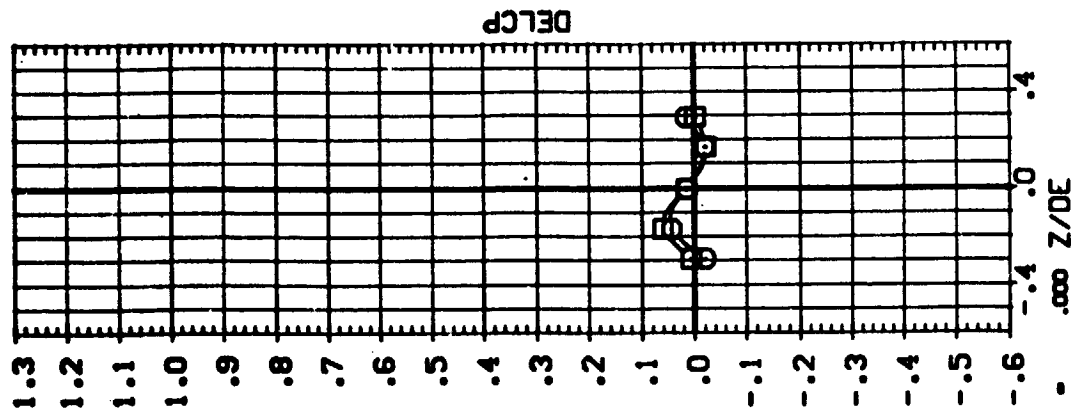
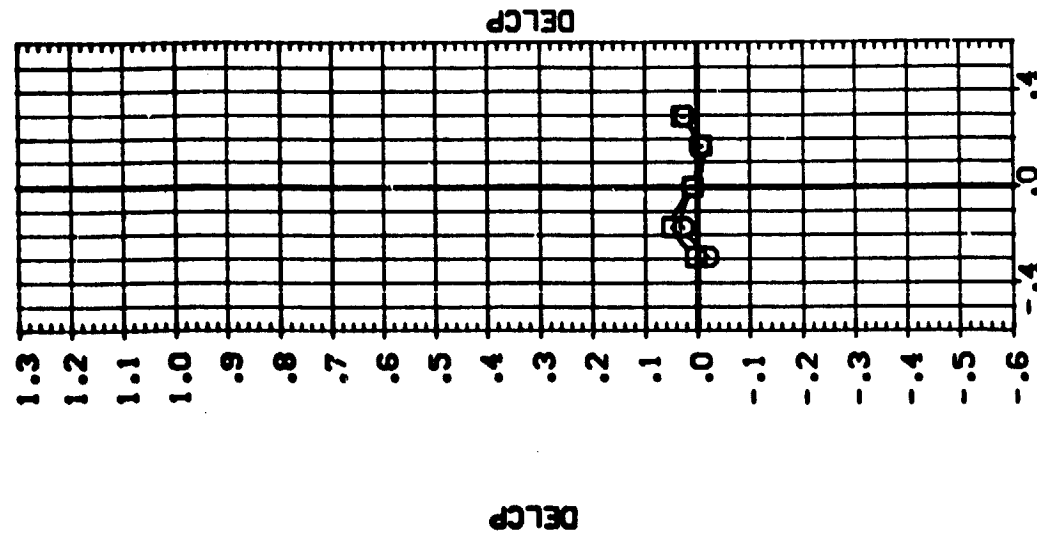




DATA SET SYMBOL: 8  
 (9L7805)  
 (9L7807)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.

BETA: .000  
 POWER: .000  
 CTR: 29.310  
 SWPR: 2.020

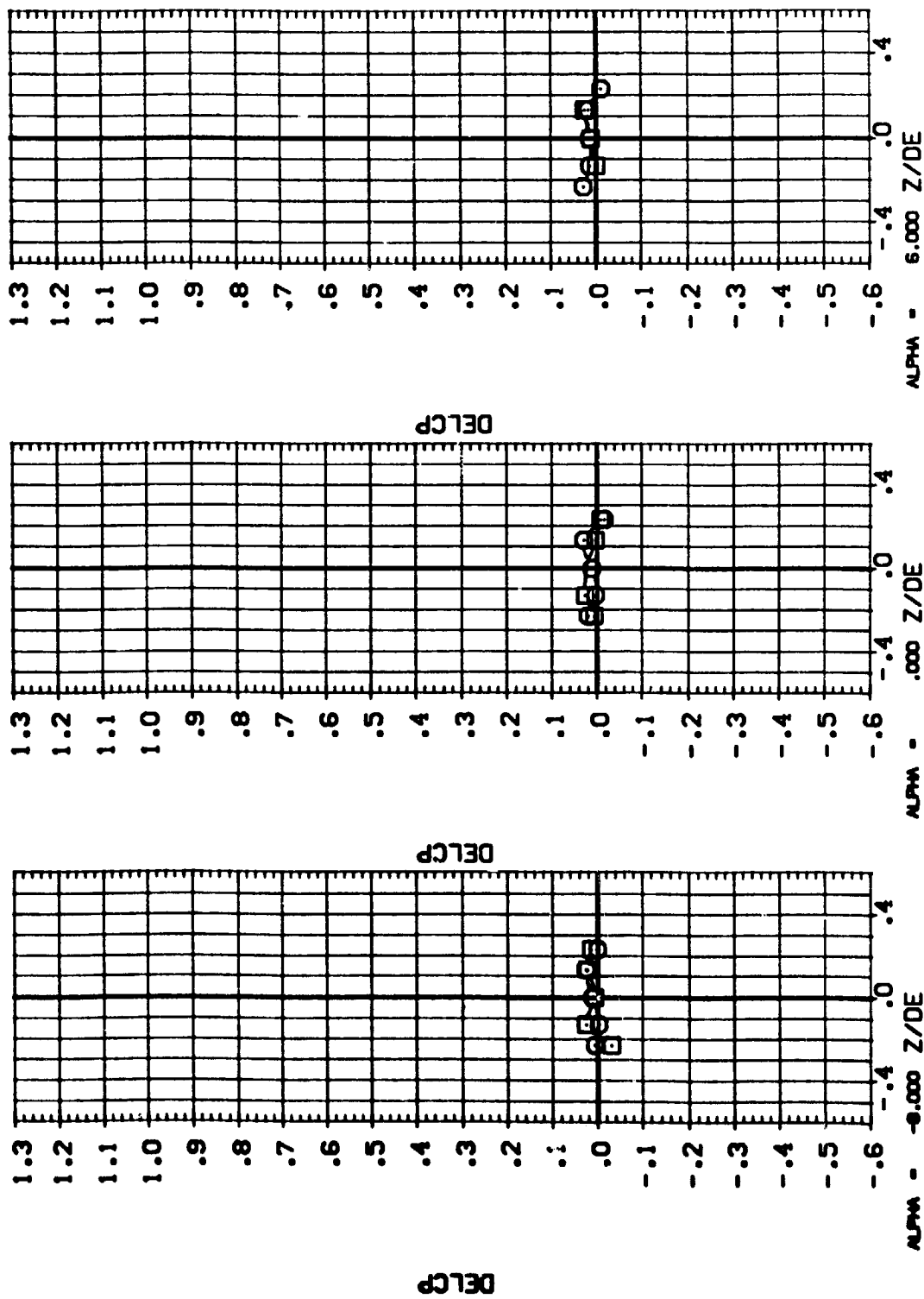


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .754



DATA SET SYMBOL: (95805) (95807) CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ. CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ. BETA: .000 .000 POWER: .000 1.000 OPR: 28.310 SNPR: 2.020



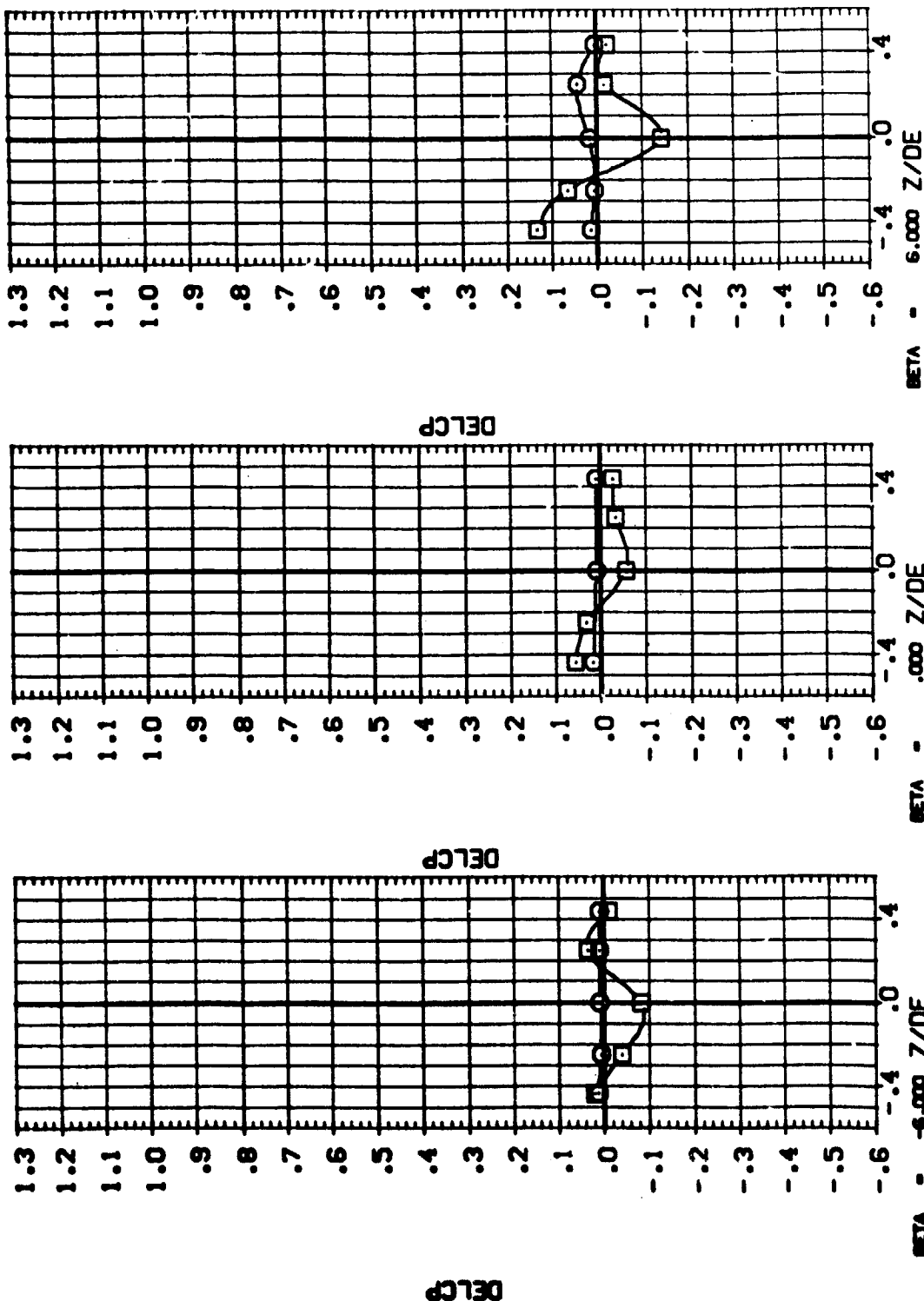
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .928



DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: **CL 114-053 (A36 02 + T1 + S1) LOWER LH MPS NOZ.**  
(SUPERSONIC) **B** **CL 114-053 (A36 02 + T1 + S1) LOWER LH MPS NOZ.**

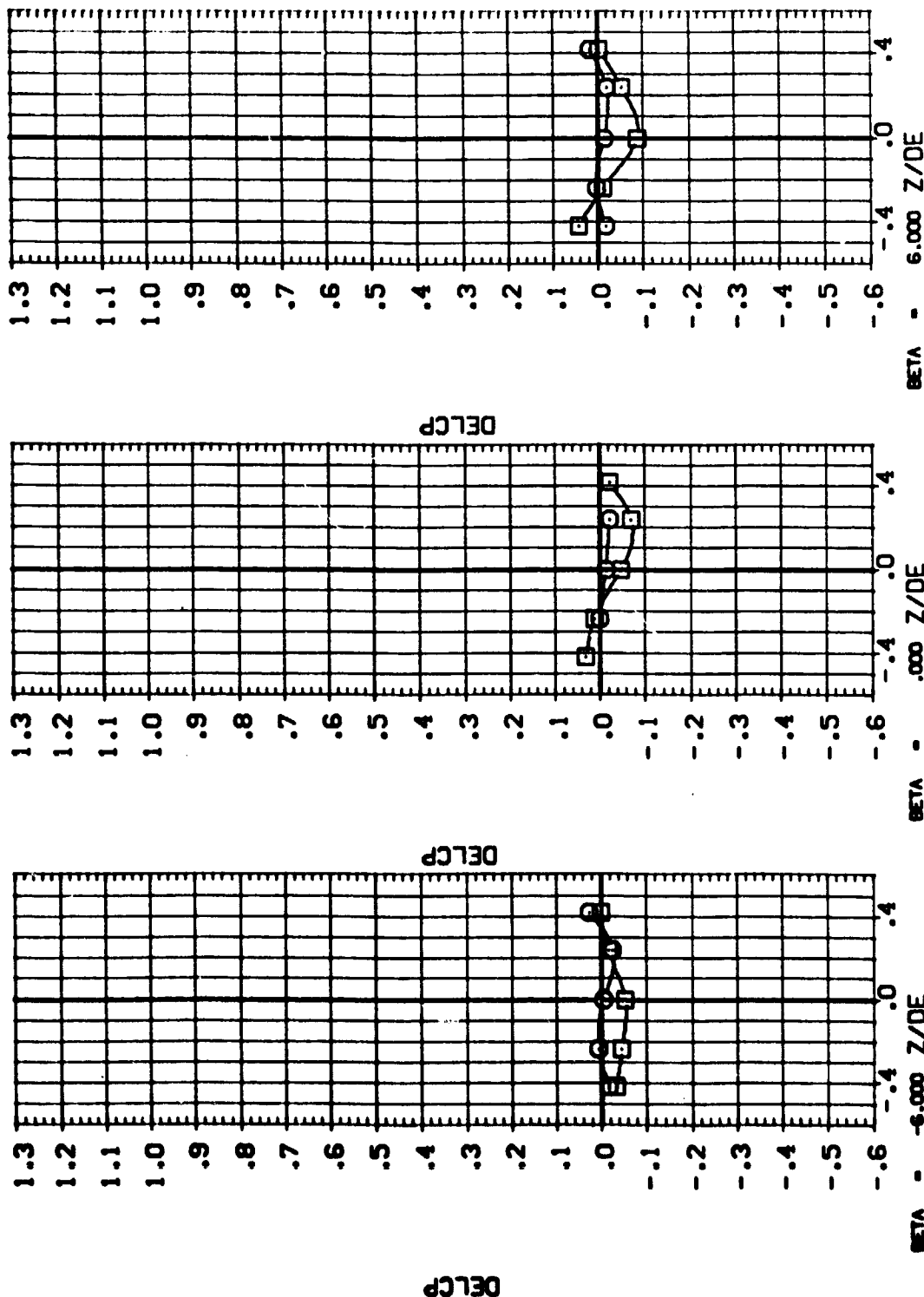
ALPHA: **.000** POWER: **.000** RPM: **28,310** SUPER: **2.020**





DATA SET SYMBOL: 8  
(SUBS) CAL T14-053 (AS 02 + T1) + S1 LOWER LH MPS NOZ:  
(SUBS) CAL T14-053 (AS 02 + T1) + S1 LOWER LH MPS NOZ:

ALPHA: .000  
POWER: .000  
OPR: 28.310  
SRPR: 2.020

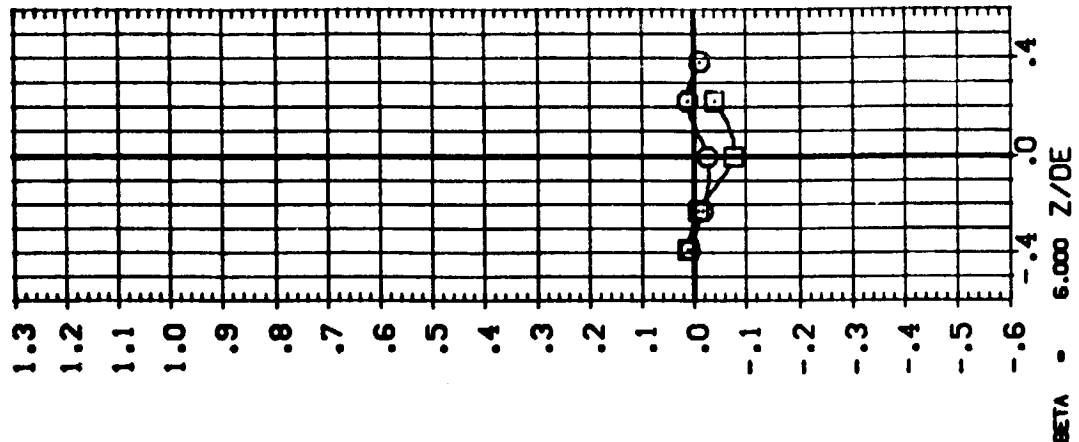
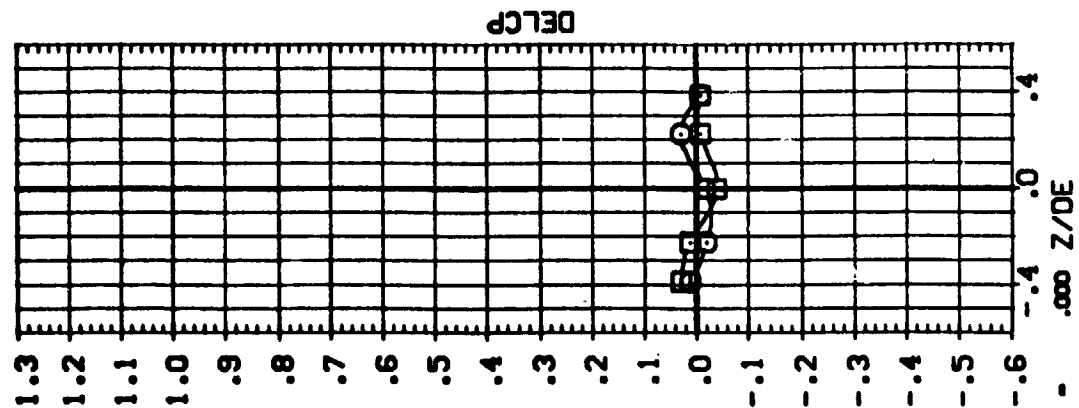
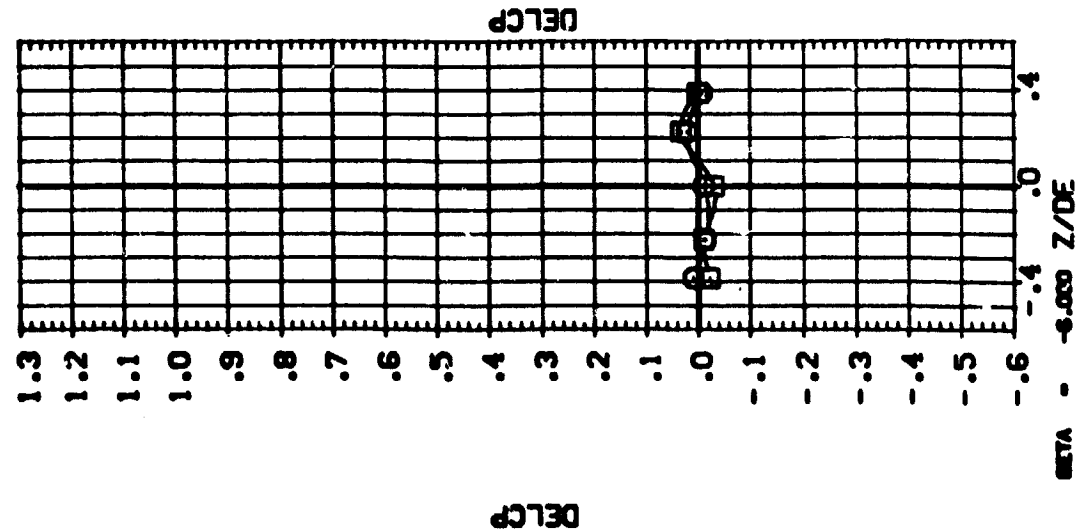


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .232



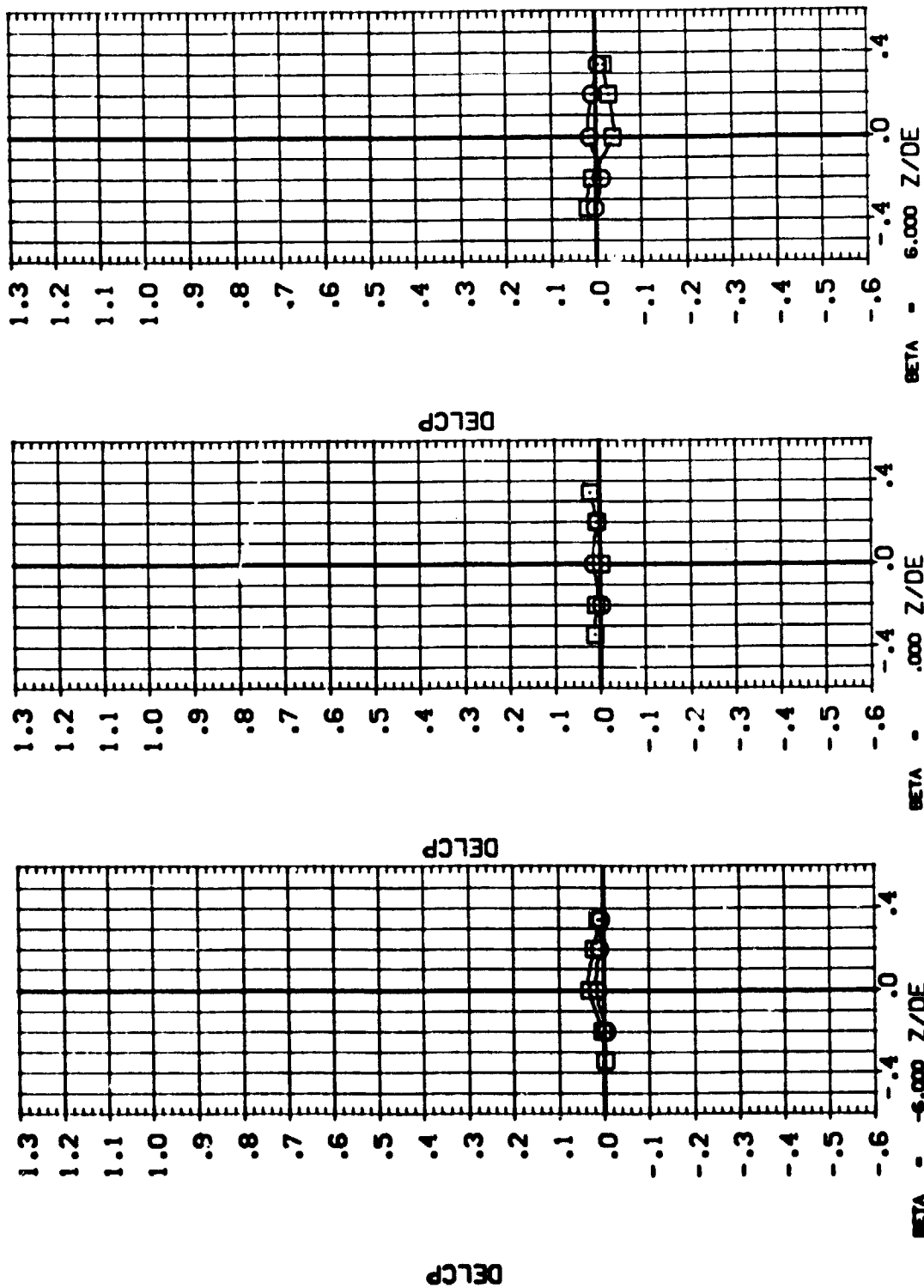
DATA SET SYMBOL: 0  
 (SUPER) (SUPER)  
 CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.  
 CAL T14-053 IAS 02 : T1 : S1 LOWER LH MPS NOZ.  
 ALPHA: .000  
 POWER: 1.000  
 CTR: 28.310  
 SWPR: 2.020



DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: CONF (QUANT) DESCRIPTION: ALPHA POWER OPR SRRPR  
 (SUPTOS) 0 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: .000 .000 26.310 2.020  
 (SUPTOS) 0 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: .000 .000 1.000 1.000

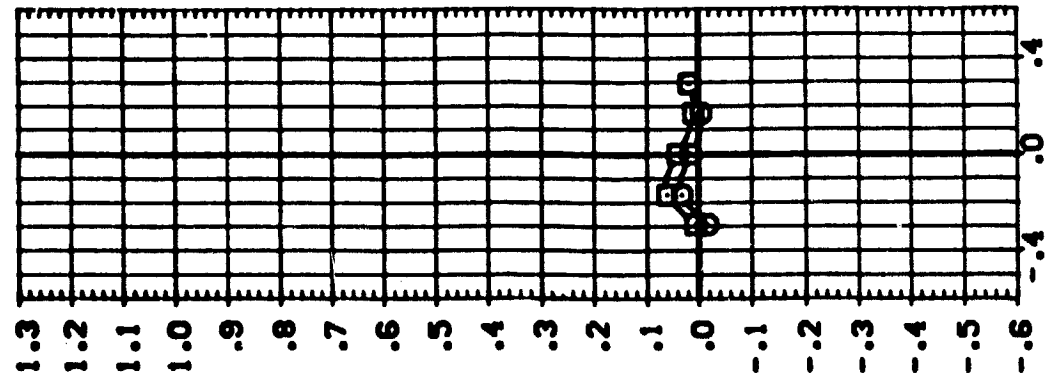


DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

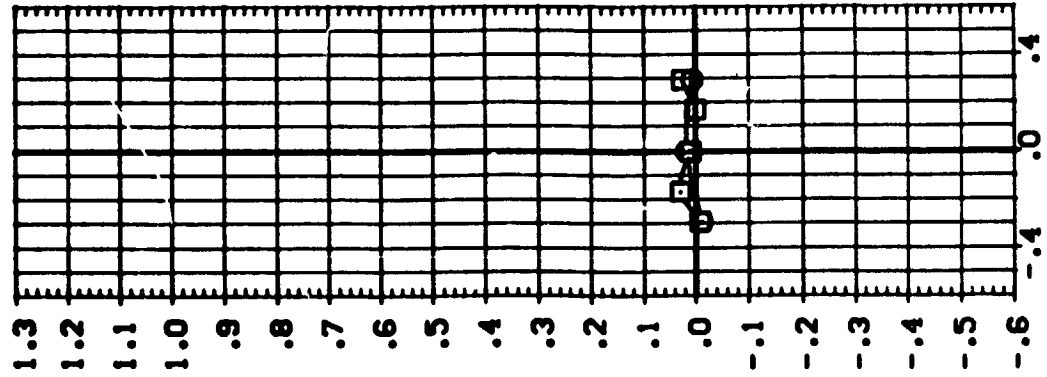
MACH = 1.200 X/DE = .580



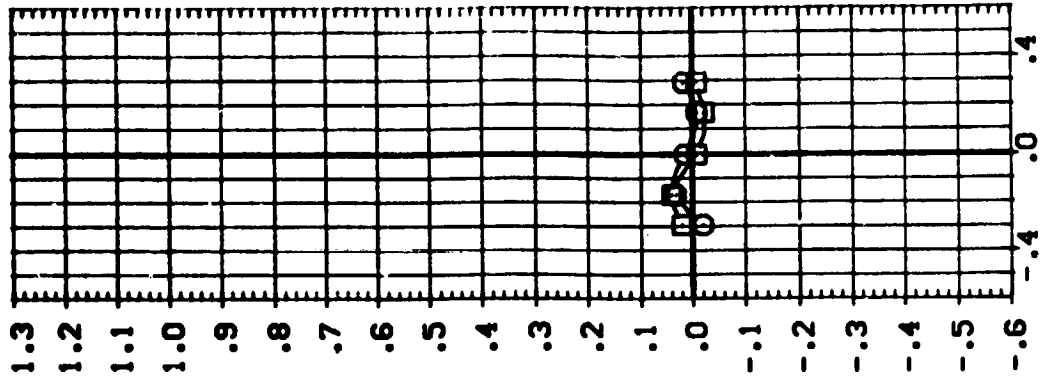
DATA SET 5900L. CONFIGURATION DESCRIPTION  
(SUPER) ☐ CAL 714-053 IAS 02 : 11 : 31 LOWER LH MPS NOZ:  
(SUPER) ☐ CAL 714-053 IAS 02 : 11 : 31 LOWER LH MPS NOZ:  
ALPHA POWER CTR 5900L 20.310 2.020



BETA = -6.000 Z/DE



BETA = .000 Z/DE



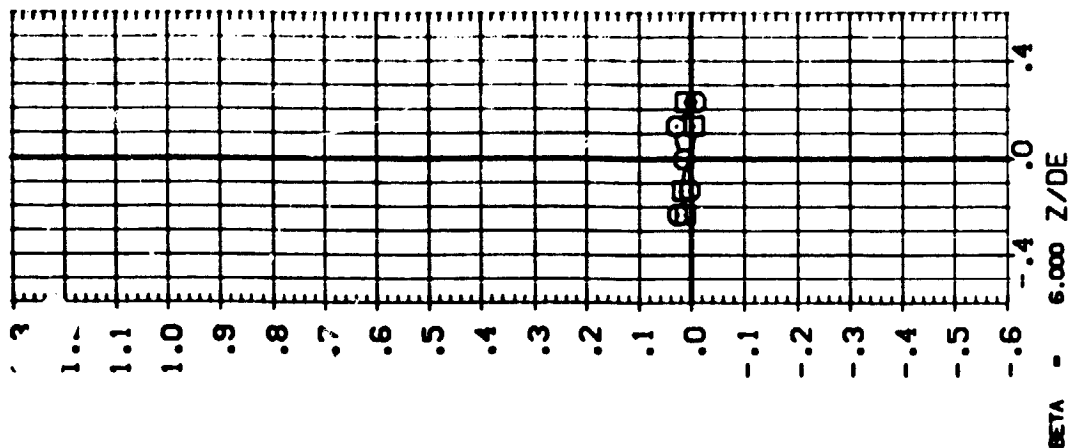
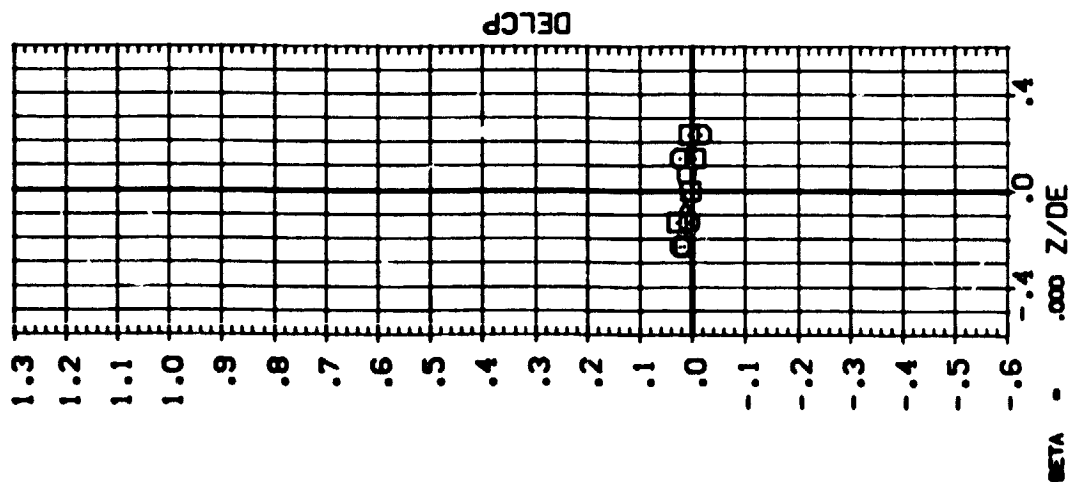
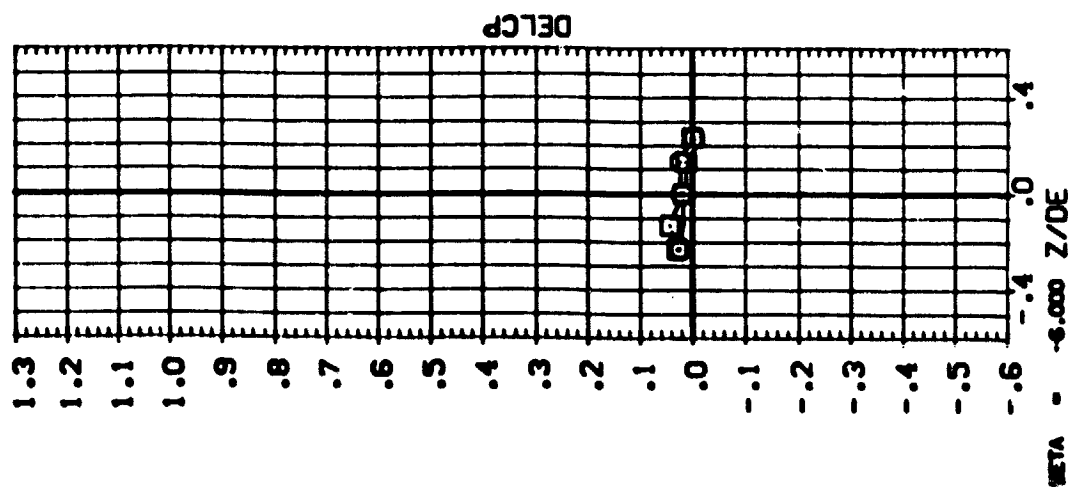
BETA = 6.000 Z/DE

# DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .754



DATA SET SYMBOL: ☐ CAL T14-053 (A36 02 : T1 : S1) LOWER LH MPS NOZ.  
(SUPERB) (SUPERB) CAL T14-053 (A36 02 : T1 : S1) LOWER LH MPS NOZ.  
ALPHA POWER DPR SWPR  
.000 .000 28.310 2.000



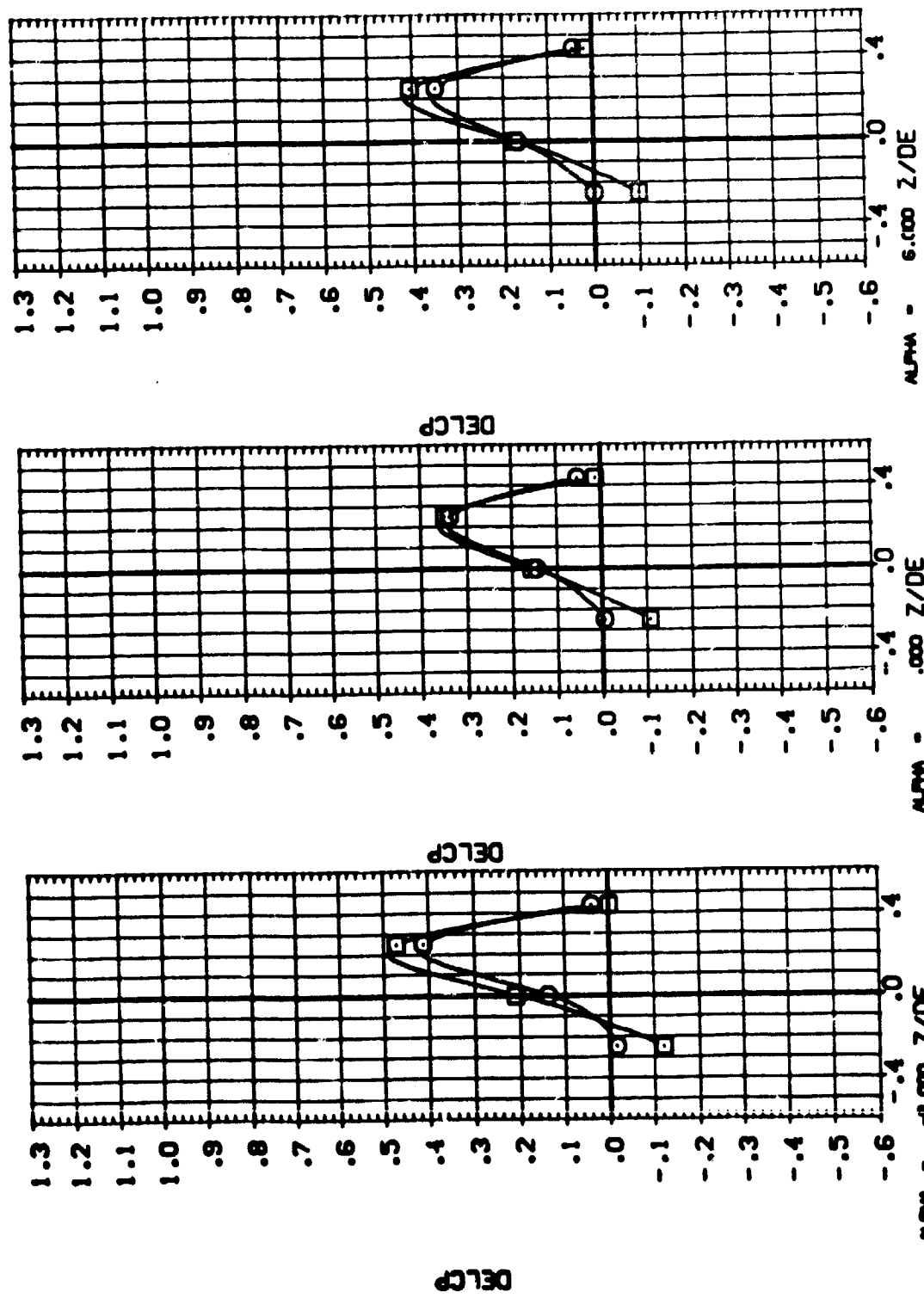
DELTA PRESSURE DISTRIBUTION, LOWER LH MPS NOZZLE

MACH = 1.200 X/DE = .928





DATA SET SYMBOL: (SUT001) (SUT000)   
 CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ :   
 CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ :   
 BETA: .000 POWER: 0PR: 36.200 SPEED: 2.300



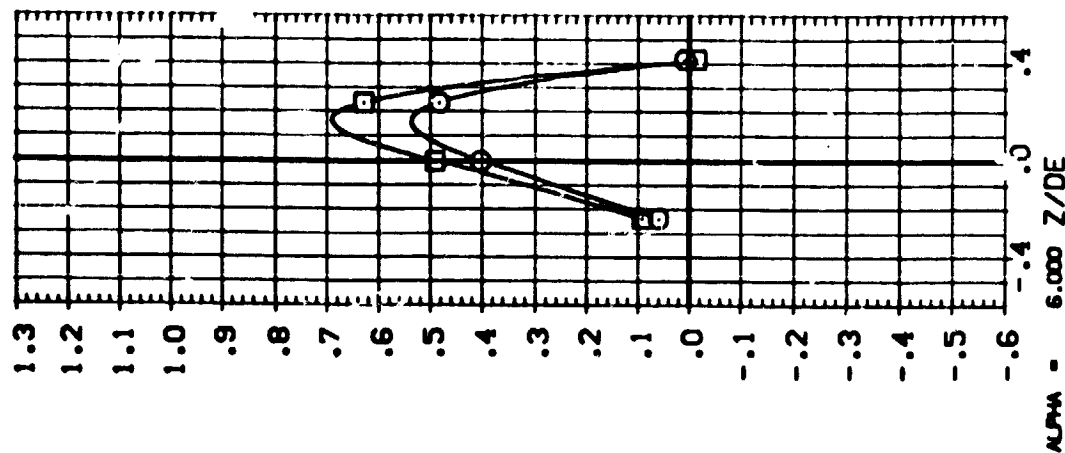
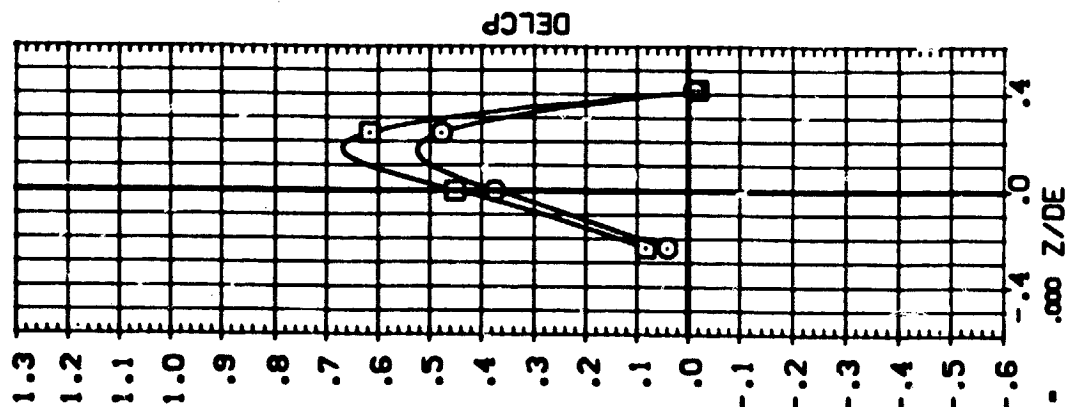
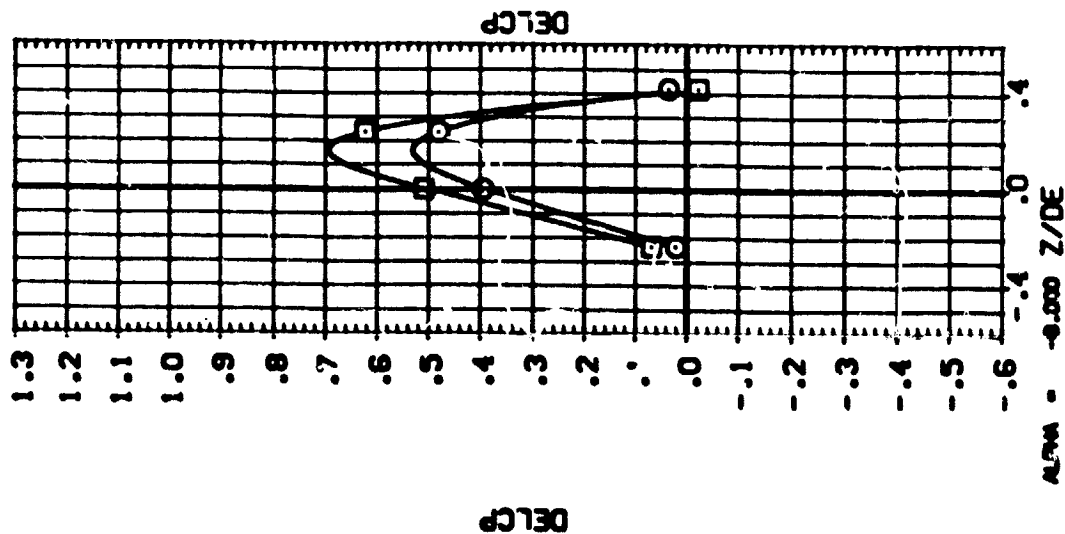
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .058



DATA SET SYMBOL CONFIGURATION DESCRIPTION  
(SUPT001) ☐ CAL T14-053 IAS6 02 : T1 : S1 LOWER RH MPS NOZ.  
(SUPT002) ☐ CAL T14-053 IAS6 02 : T1 : S1 LOWER RH MPS NOZ.

BETA POWER CPR SWPR  
.000 1.000 36.200 2.330



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

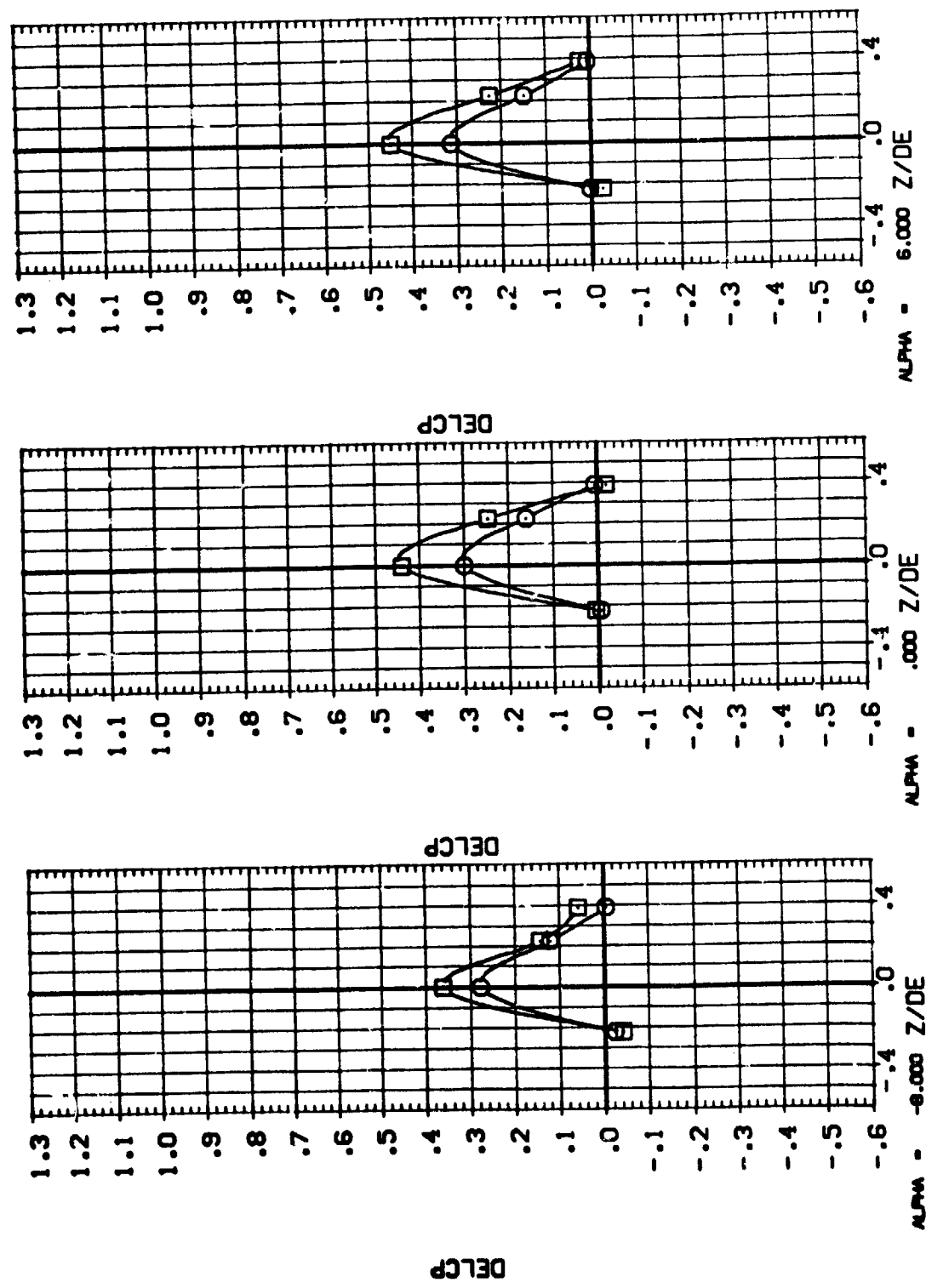
MACH = .900 X/DE = .232



DATA SET SYMBOL      CONFIGURATION DESCRIPTION      BETA      POWER      CPM      SNRPR

(SUFC01)      CAL 114-053 IAS6 C2 + T1 + S1 LOWER RH MPS NOZ.      .000      1.000      36.200      2.330

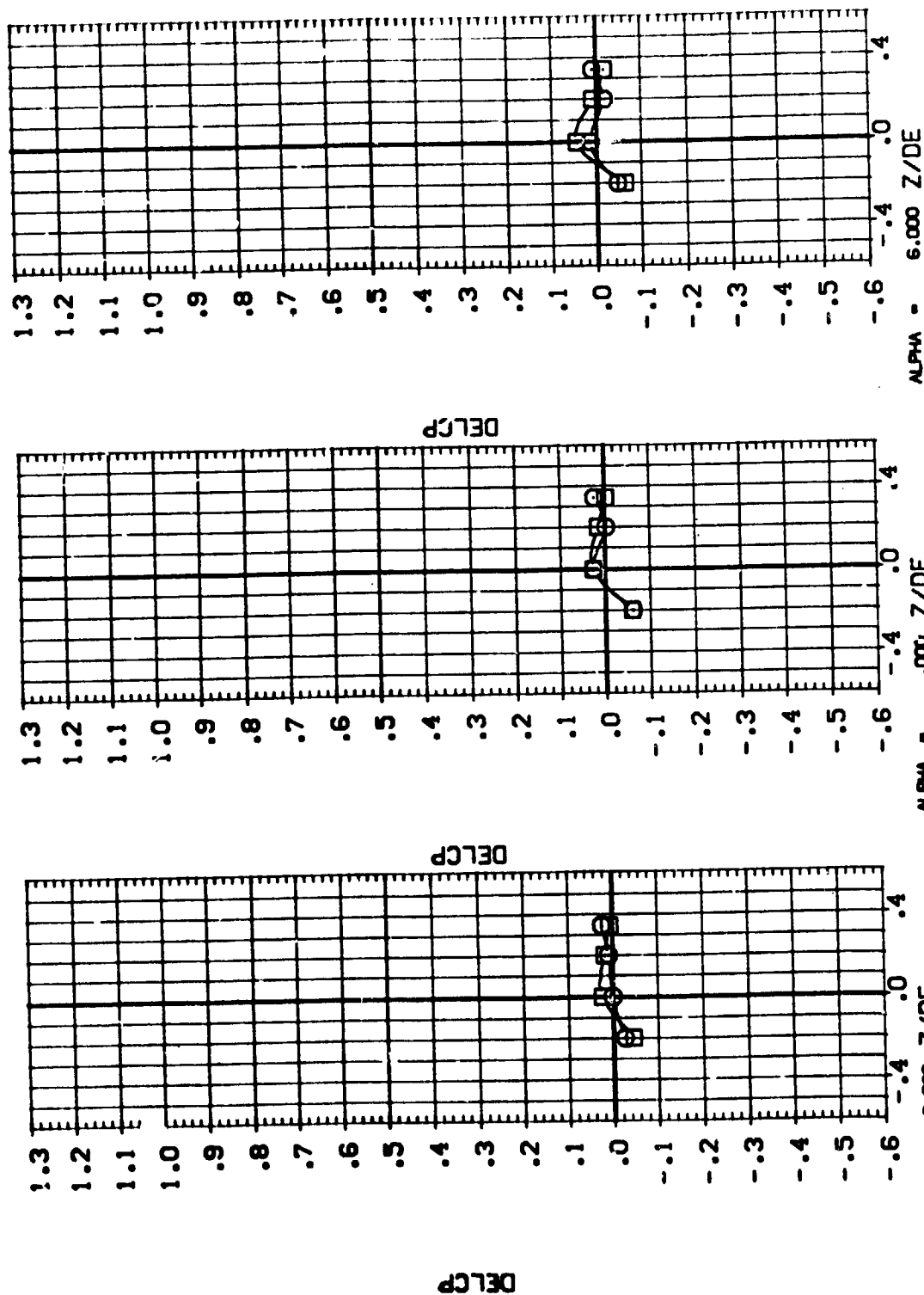
(SUFC03)      CAL 114-053 IAS6 C2 + T1 + S1 LOWER RH MPS NOZ.      .000      1.000      36.200      2.330



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .406

DATA SET SYMBOL: CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: SRPR 2.300  
 (SUF001) CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: OPR 36.200  
 (SUF003) BETA .000 POWER .000

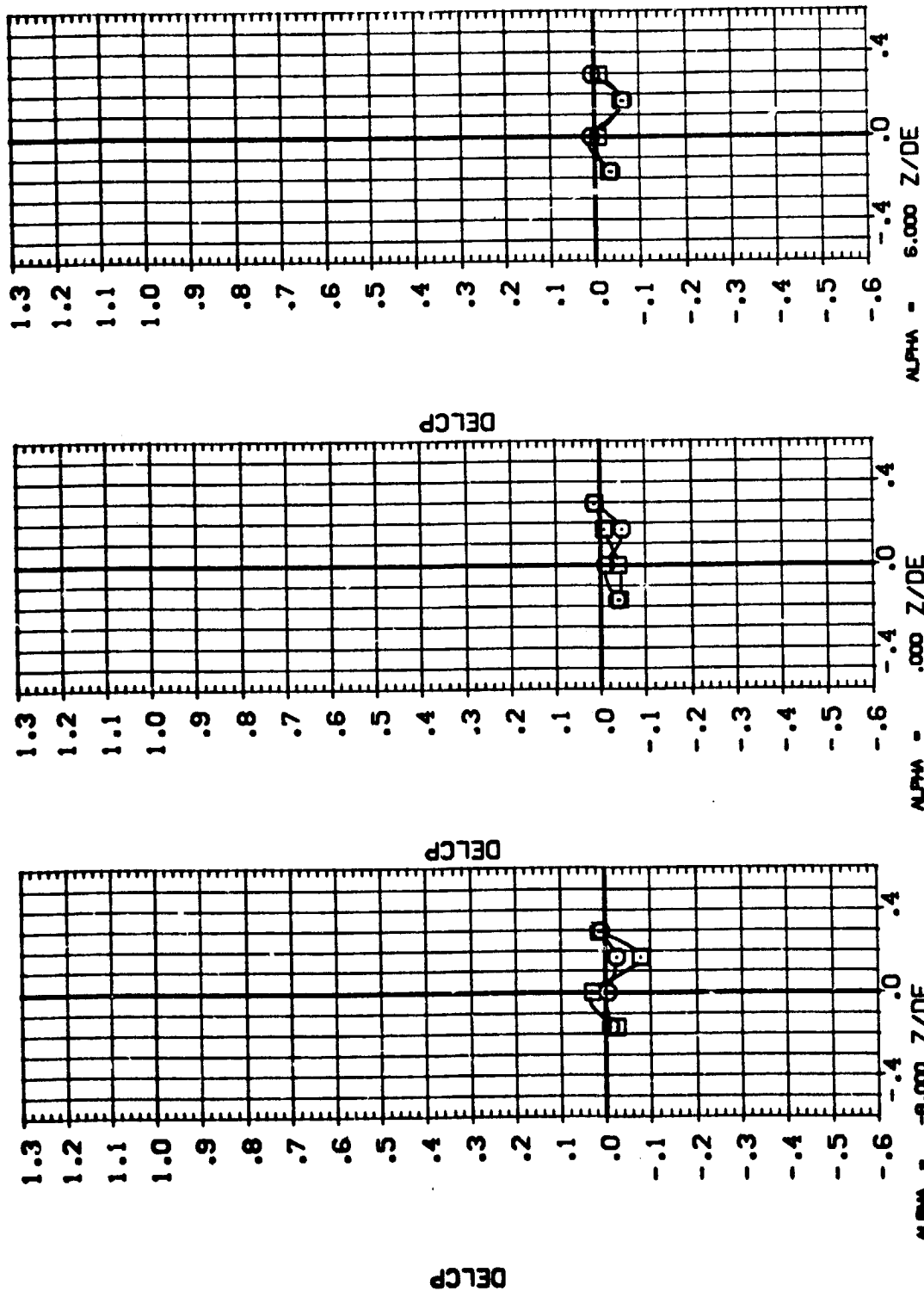


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .580




DATA SET SYMBOL: (9UFC001) (9UFC003) CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: BETA: .000 .000 POWER: .000 1.000 DFR: 36.200 SHPR: 2.370

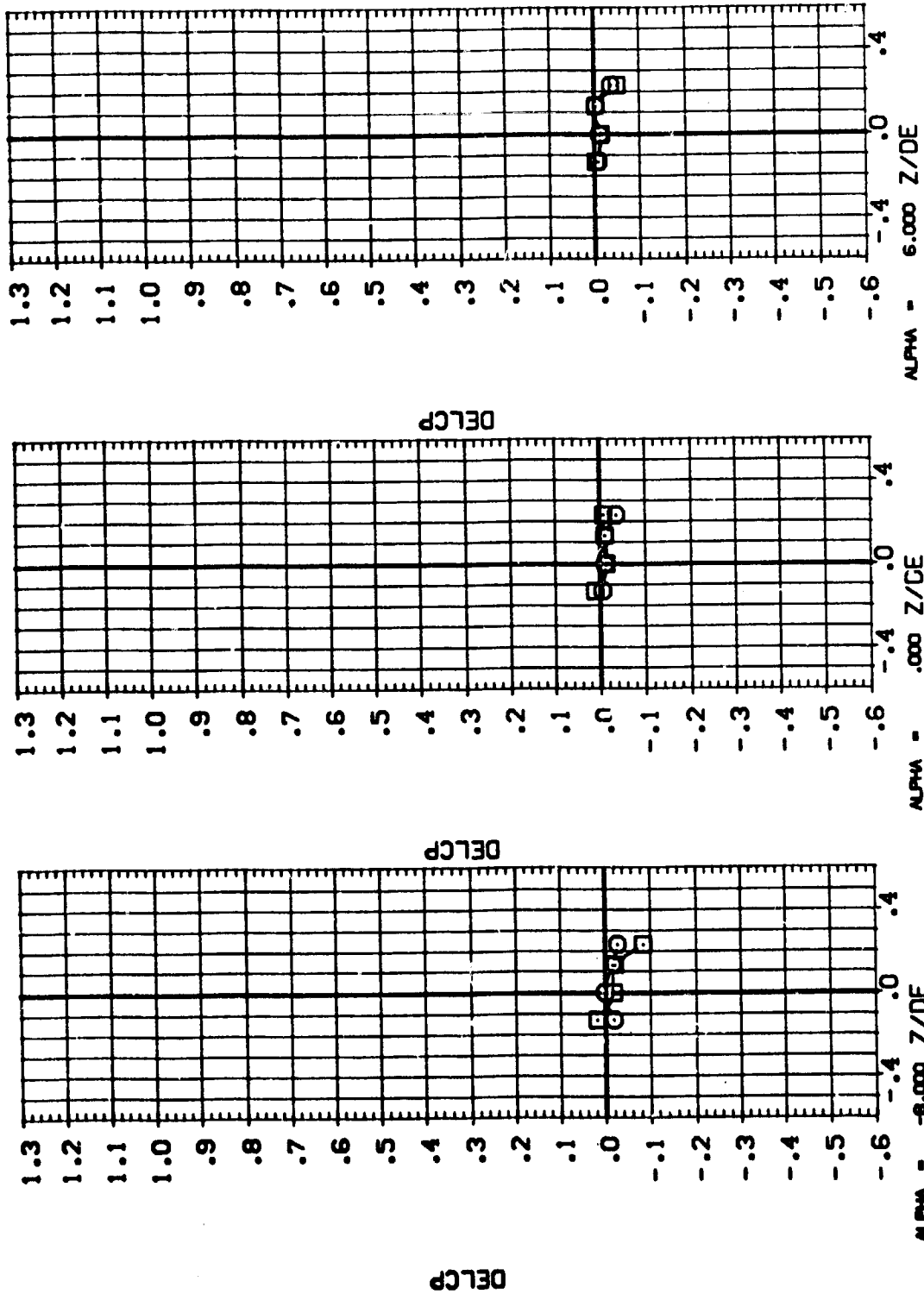


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL:  CONFIGURATION DESCRIPTION  
 (SUF001) CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (SUF003) CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.

BETA .000 .000  
 POWER .000 1.000  
 DPR 36.200  
 SRPR 2.300

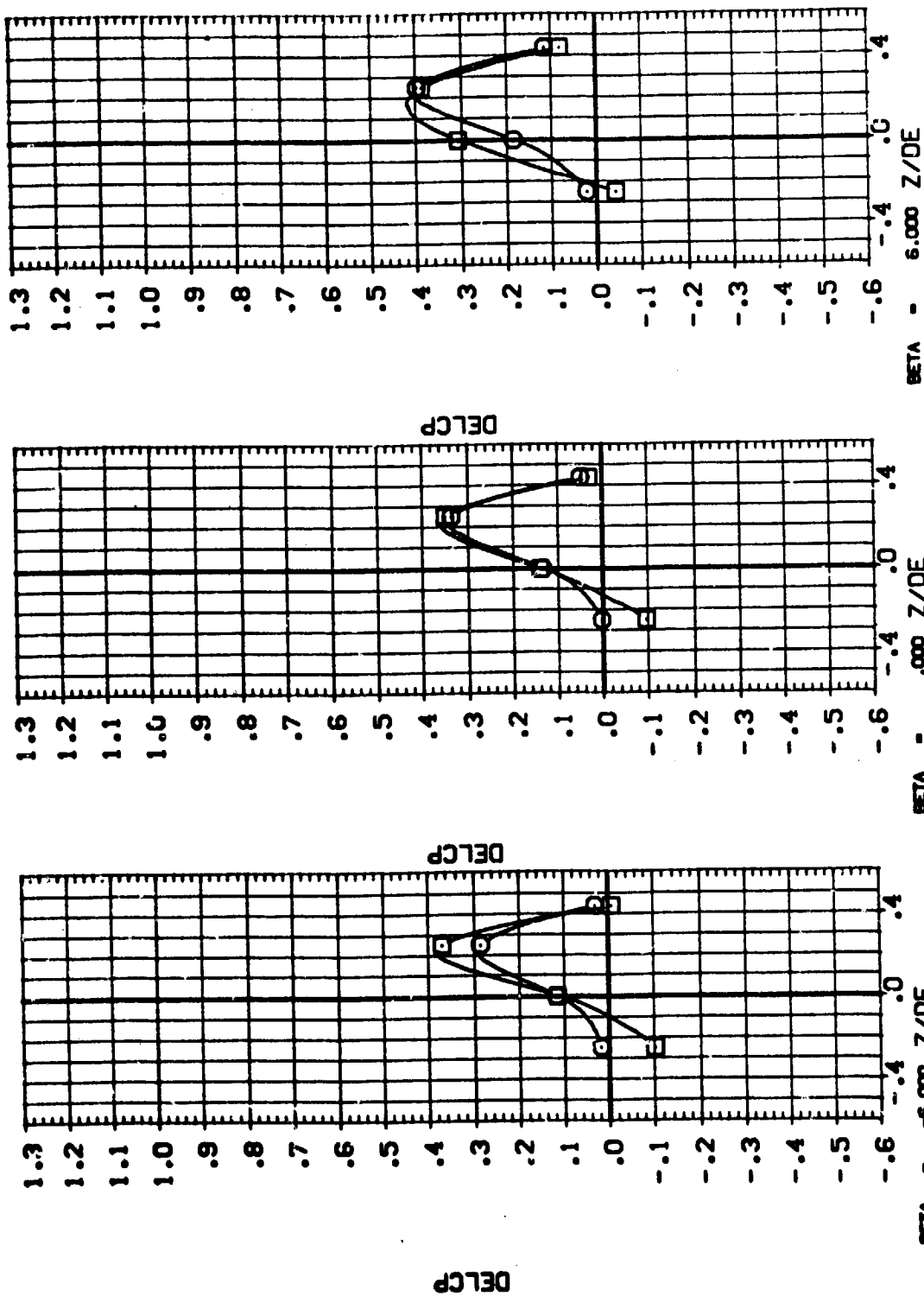


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .928



DATA SET SYMBOL: CAL T14-053 (SUFO02) ☐ CAL T14-053 (SUFO04) ☐ CONFIGURATION DESCRIPTION: IAS 02 + T1 + S1 LOWER RH MPS NOZ.; IAS 02 + T1 + S1 LOWER RH MPS NOZ.; ALPHA: .000 .000 POWER: .000 1.000 CDR: 36.200 SWPR: 2.330



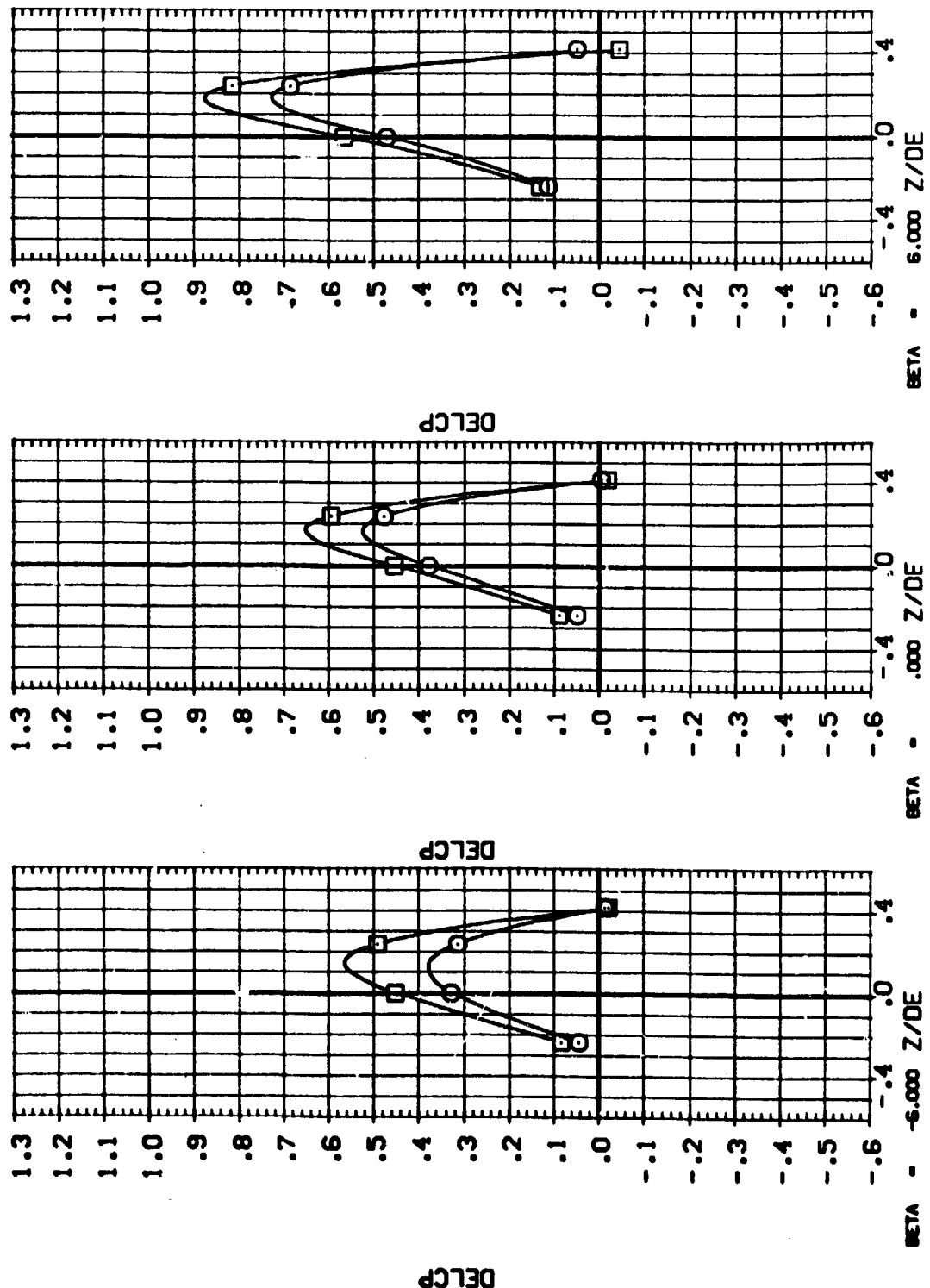
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .058

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    POWER    CPR    SRPR

(SUF002)    CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:    .000    .000    36.200    2.330

(SUF004)    CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:    .000    1.000            



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .232

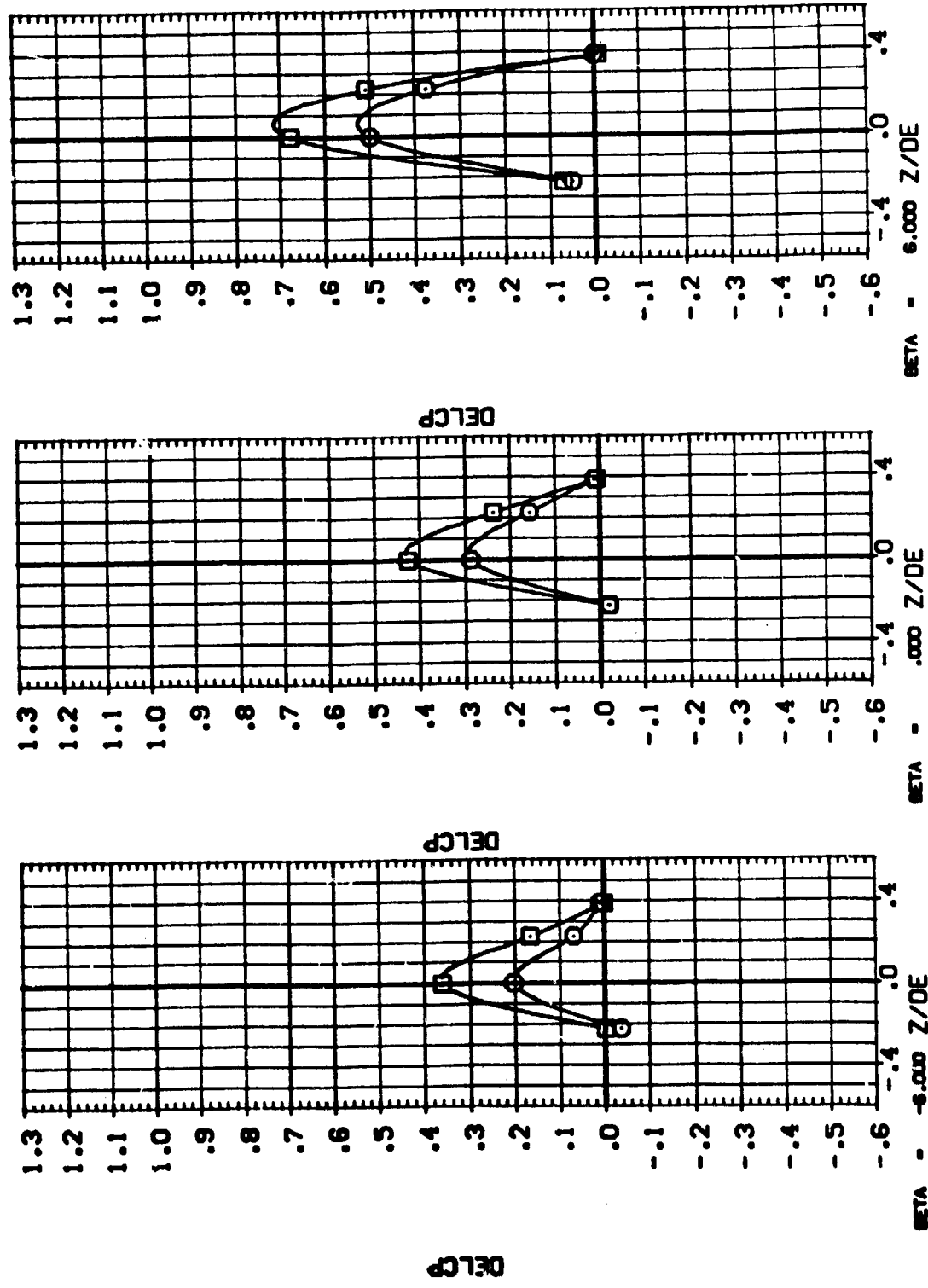


Handwritten signature or initials.

DATA SET SYMBOL: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (SLF002) B CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (SLF004)

CONFIGURATION DESCRIPTION

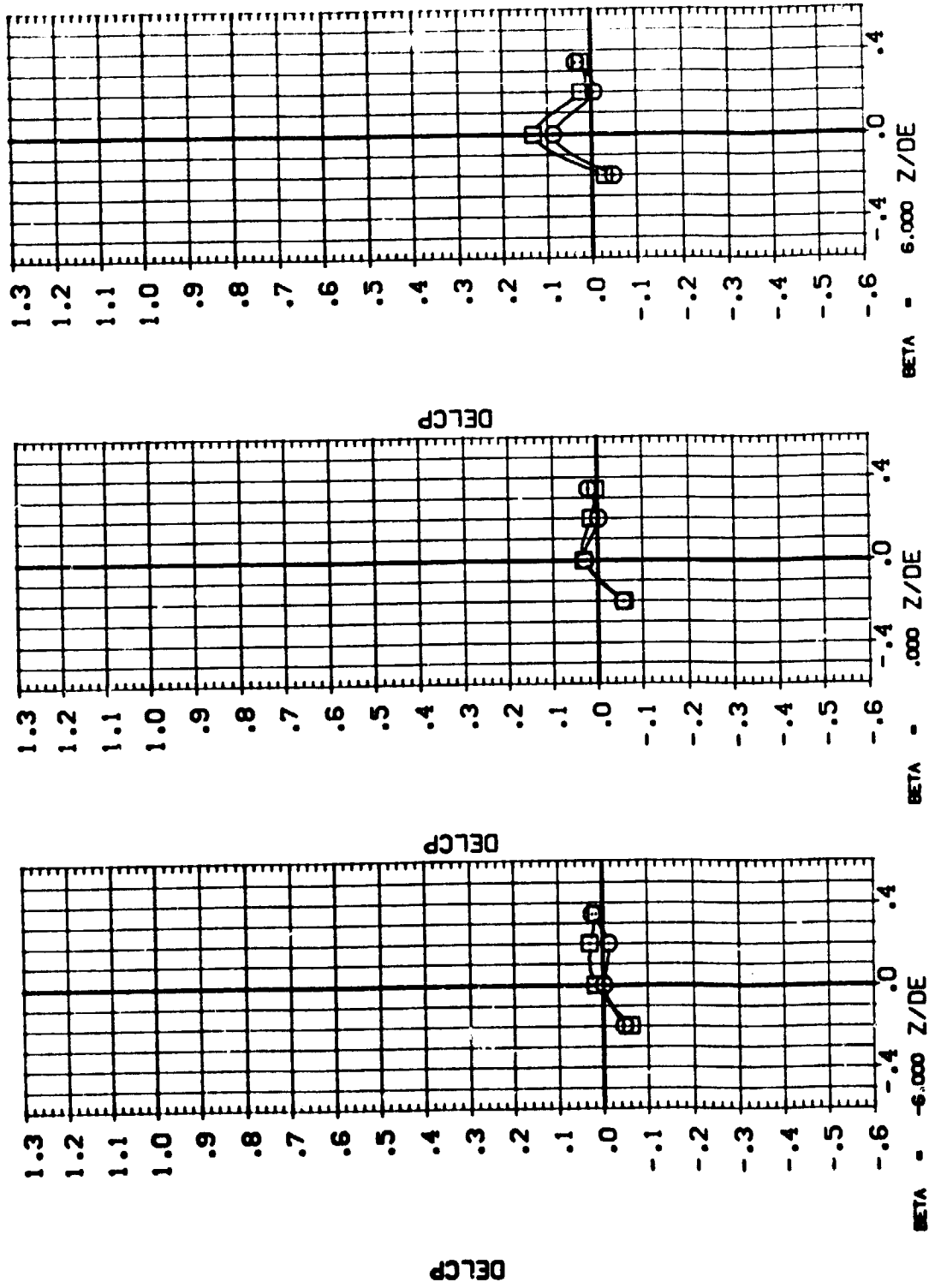
ALPHA .000 POWER .000 CTR 36.200 SWPR 2.300



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .406

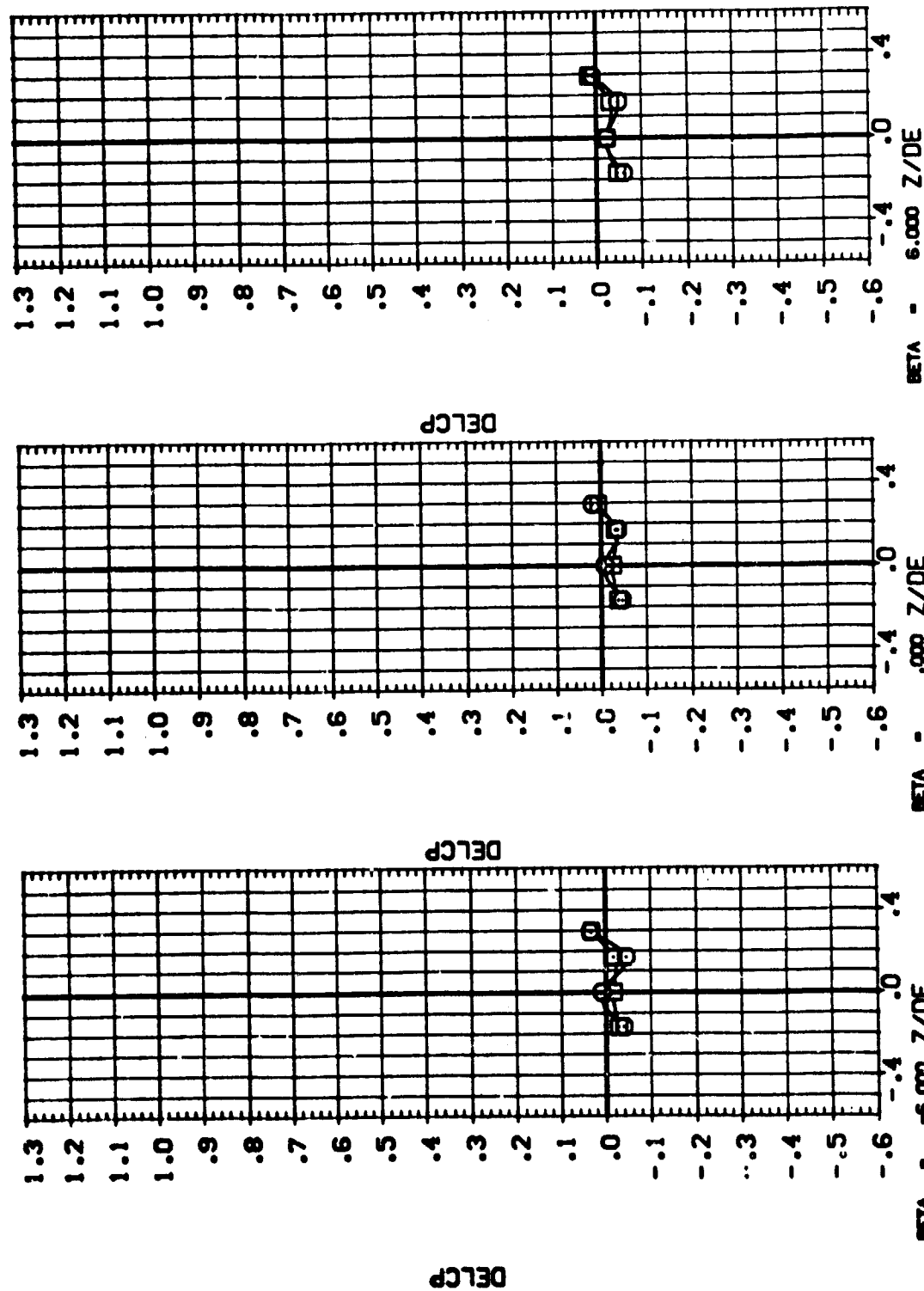
DATA S.L. SYMBOL CONFIGURATION DESCRIPTION ALPHA POWER QPR SRPR  
 (SUF002) B CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: .000 .000 36.200 2.330  
 (SUF004) B CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: .000 .000



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE



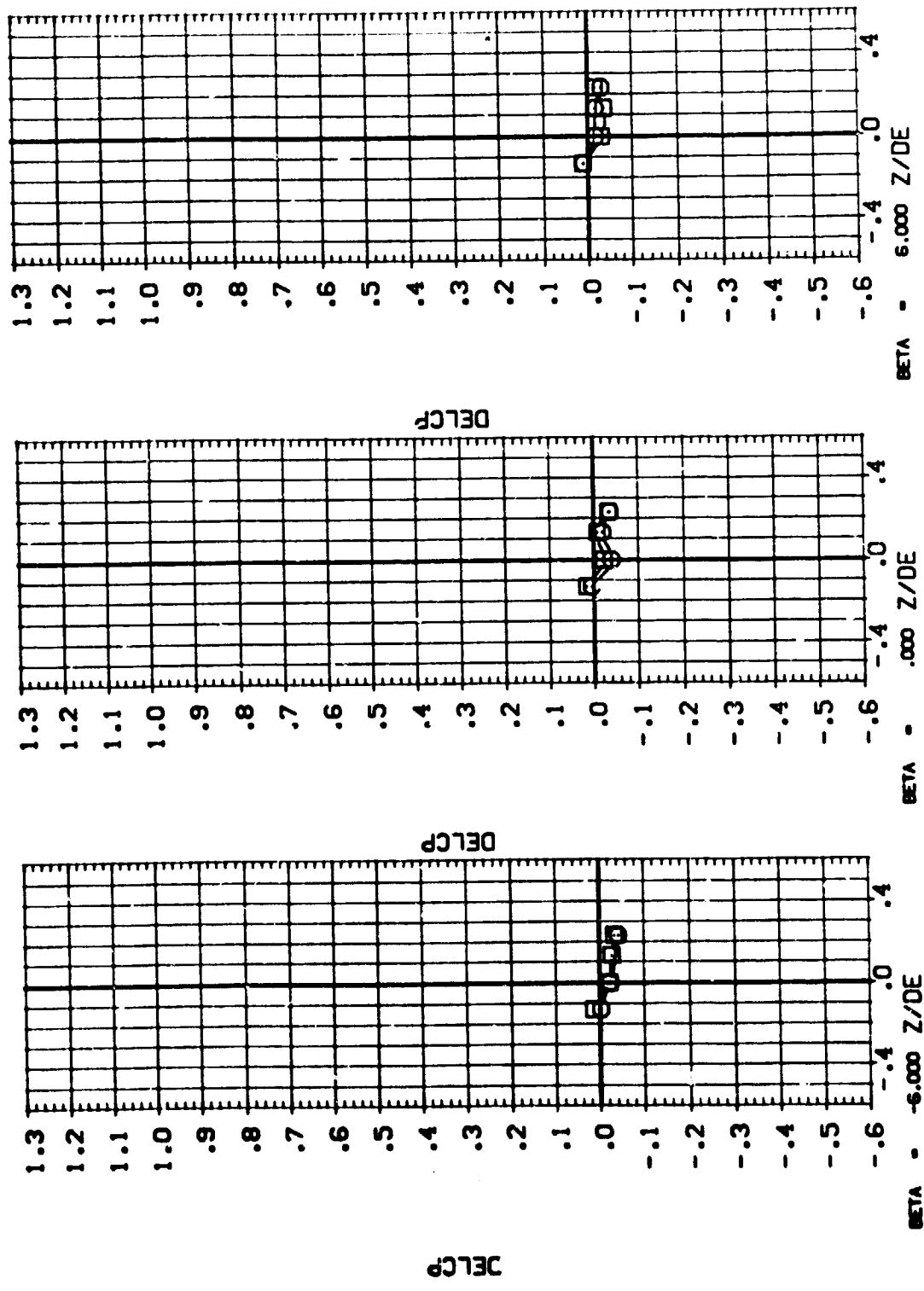
DATA SET SYMBOL: 8  
(SUPCON)  
(SUPCON)  
CONFIGURATION DESCRIPTION:  
CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:  
CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ:  
ALPHA: .000  
POWER: .000  
CPR: 36.200  
SNRPR: 2.300



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = .900 X/DE = .754

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ. ALPHA: .000 TOWER: .000 DPR: 36.200 SRPR: 2.300  
 (SUF002) CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ. ALPHA: .000 TOWER: .000 DPR: 36.200 SRPR: 2.300  
 (SUF004)



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

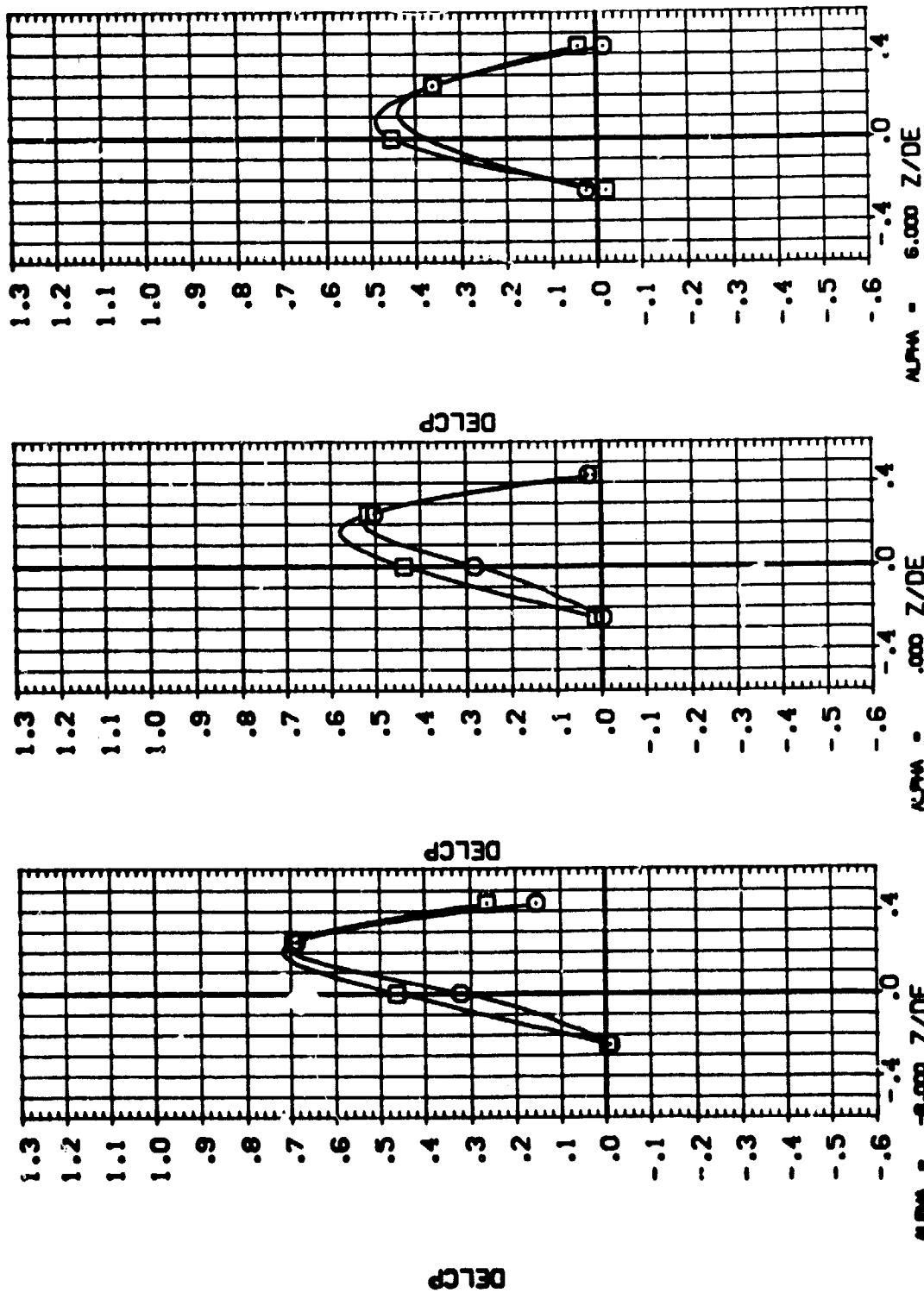
MACH = .900 X/DE = .928



DATA SET SYMBOL: 8  
 (95008)  
 (95007)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ:  
 CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ:

BETA: .000  
 POWER: .000  
 CWR: 20.310  
 SWPR: 2.020



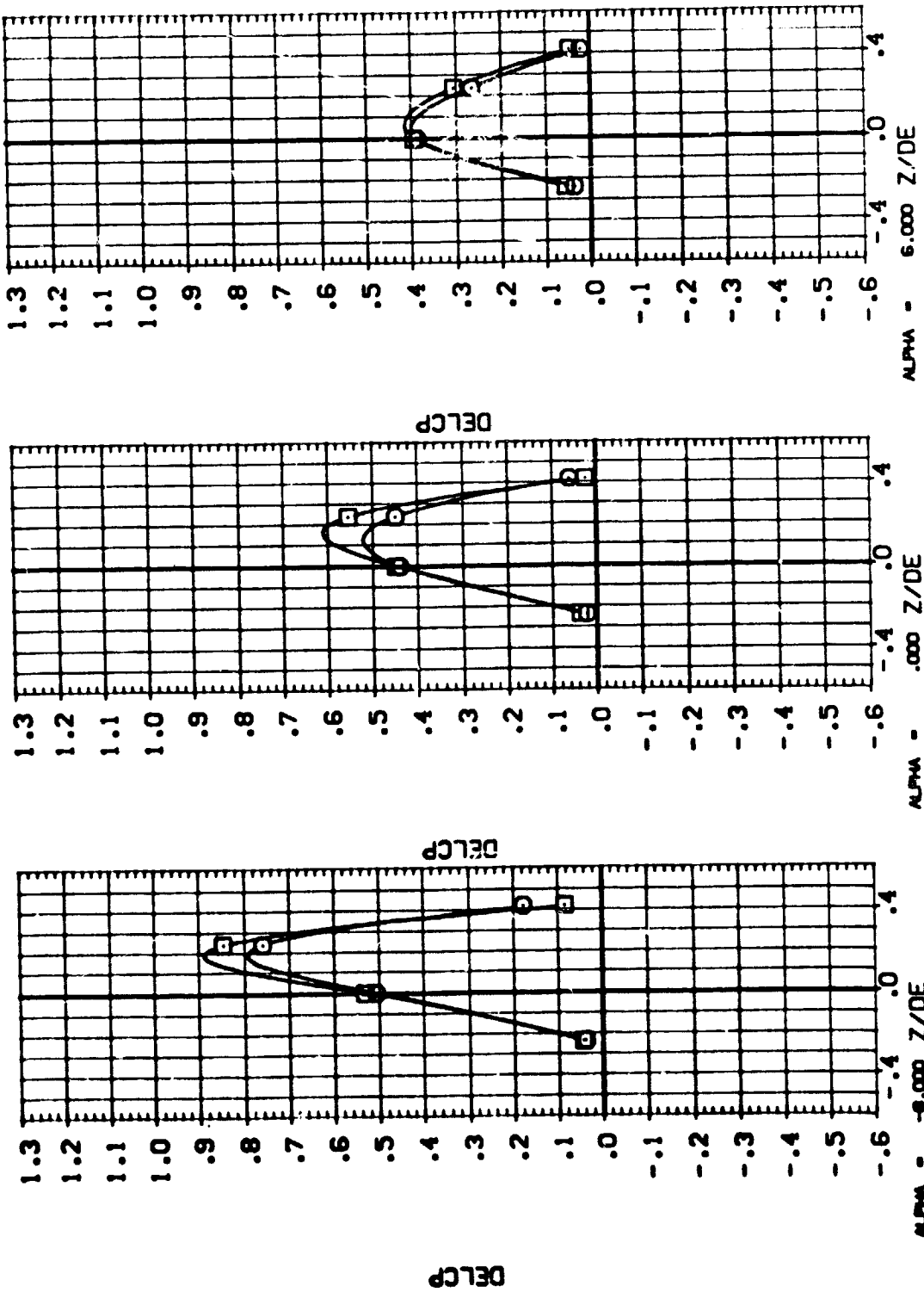
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(SUF005) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ:  
(SUF007) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ:

BETA POWER CDR SMPR  
:000 :000 28.310 2.020

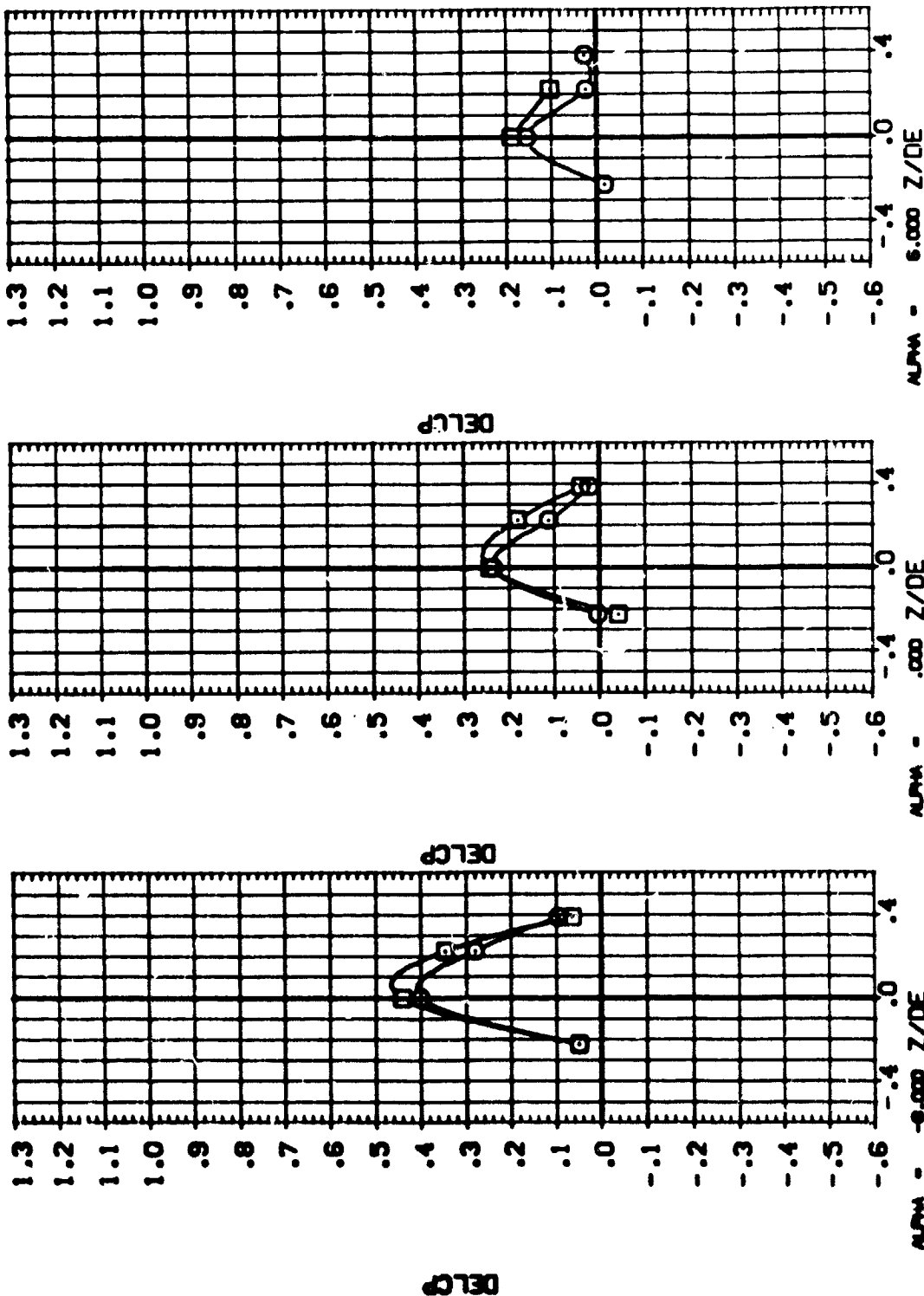


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .232



DATA SET SYMBOL: 014-053  
 (SUF003) 014-053  
 CONFIGURATION DESCRIPTION: 014-053  
 (SUF003) 014-053  
 BETA: .000  
 POWER: .000  
 DFR: 20.310  
 SNR: 2.000

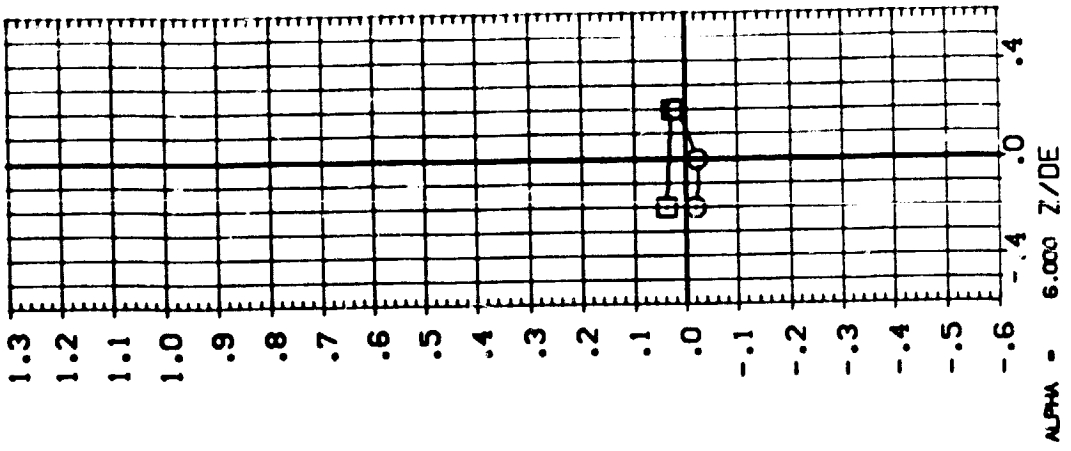
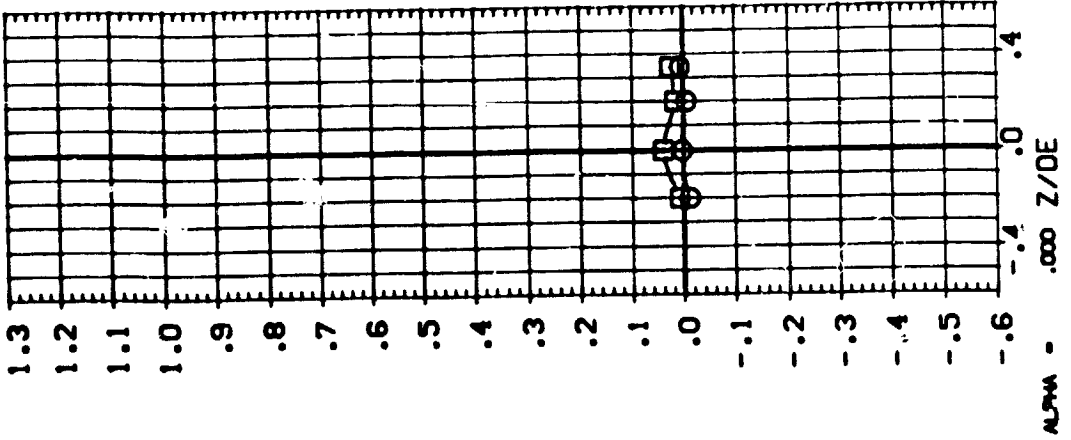
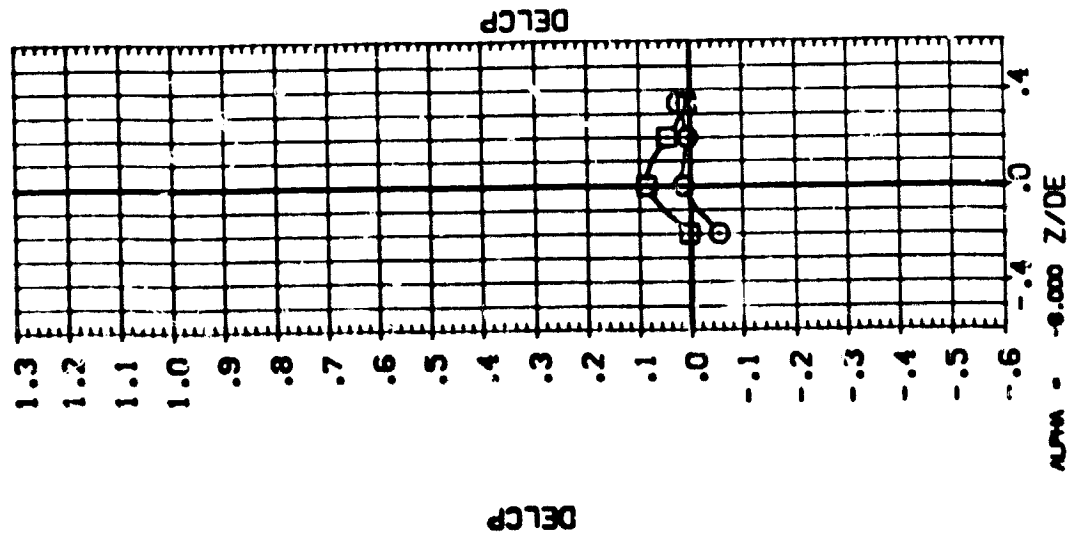


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: CONF IGURATION DESCRIPTION  
 (SUPT05) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ:  
 (SUPT07) CAL T14-053 IAS 02 : T1 : S1 LOWER RH MPS NOZ:

BETA POWER OPR SPRR  
 .000 .000 28.310 2.020



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

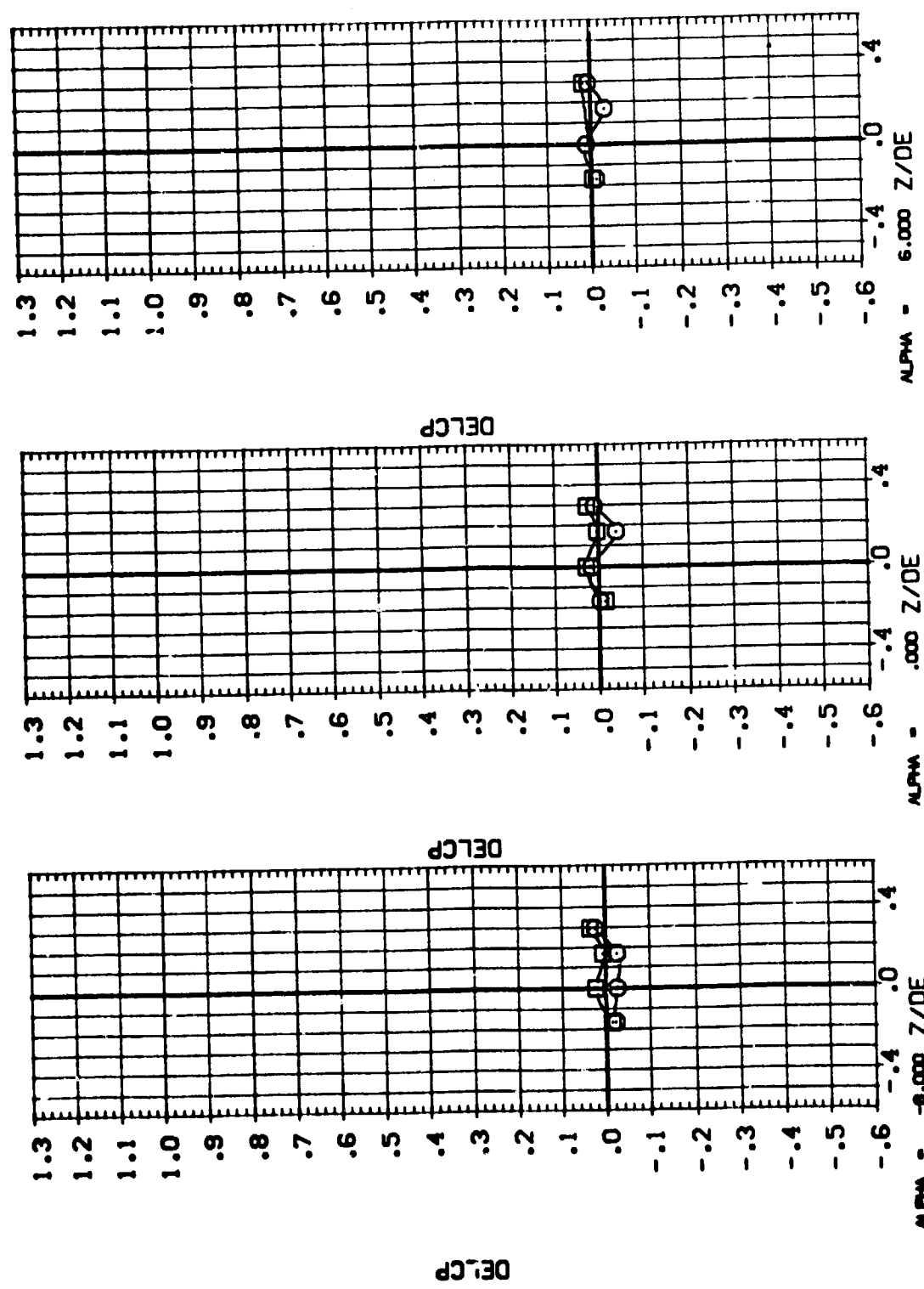
MACH = 1.200 X/DE = .580





05

DATA SET SYMBOL: ☐ (SUFC05) ☐ (SUFC07) CONFIGURATION DESCRIPTION: CAL 114-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ: .000 BETA: .000 POWER: .000 CPR: 28.310 SRRPR: 2.000 CAL 114-053 IAS6 C2 + T1 + S1 LOWER RH MPS NOZ: .000

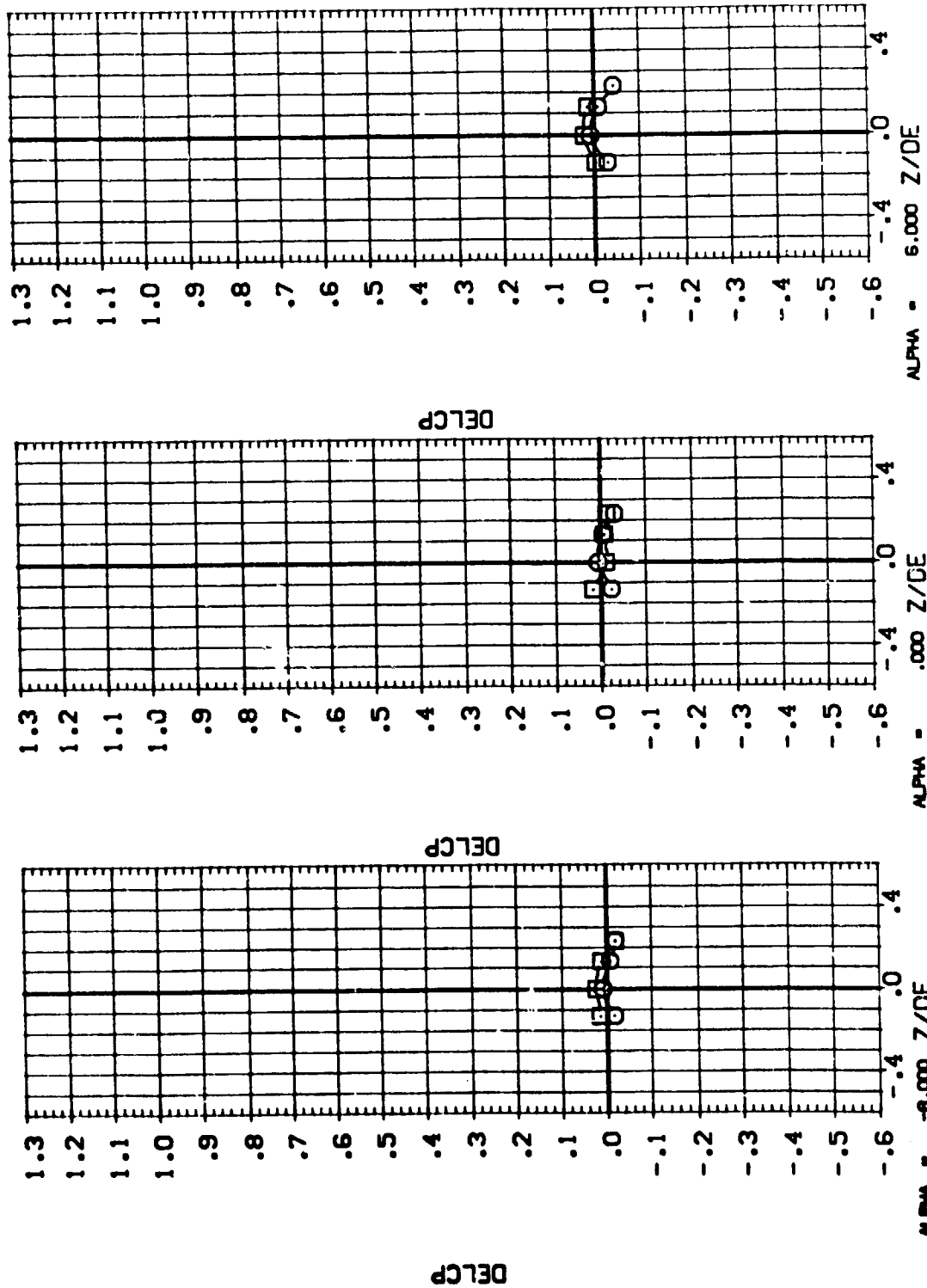


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .754

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (SUF005) CAL T14-053 A36 02 + T1 + S1 LOWER RH MPS NOZ.  
 (SUF007) CAL T14-053 A36 02 + T1 + S1 LOWER RH MPS NOZ.

BETA POWER OPR SRMPR  
 .000 .000  
 .000 1.000 28.310 2.020

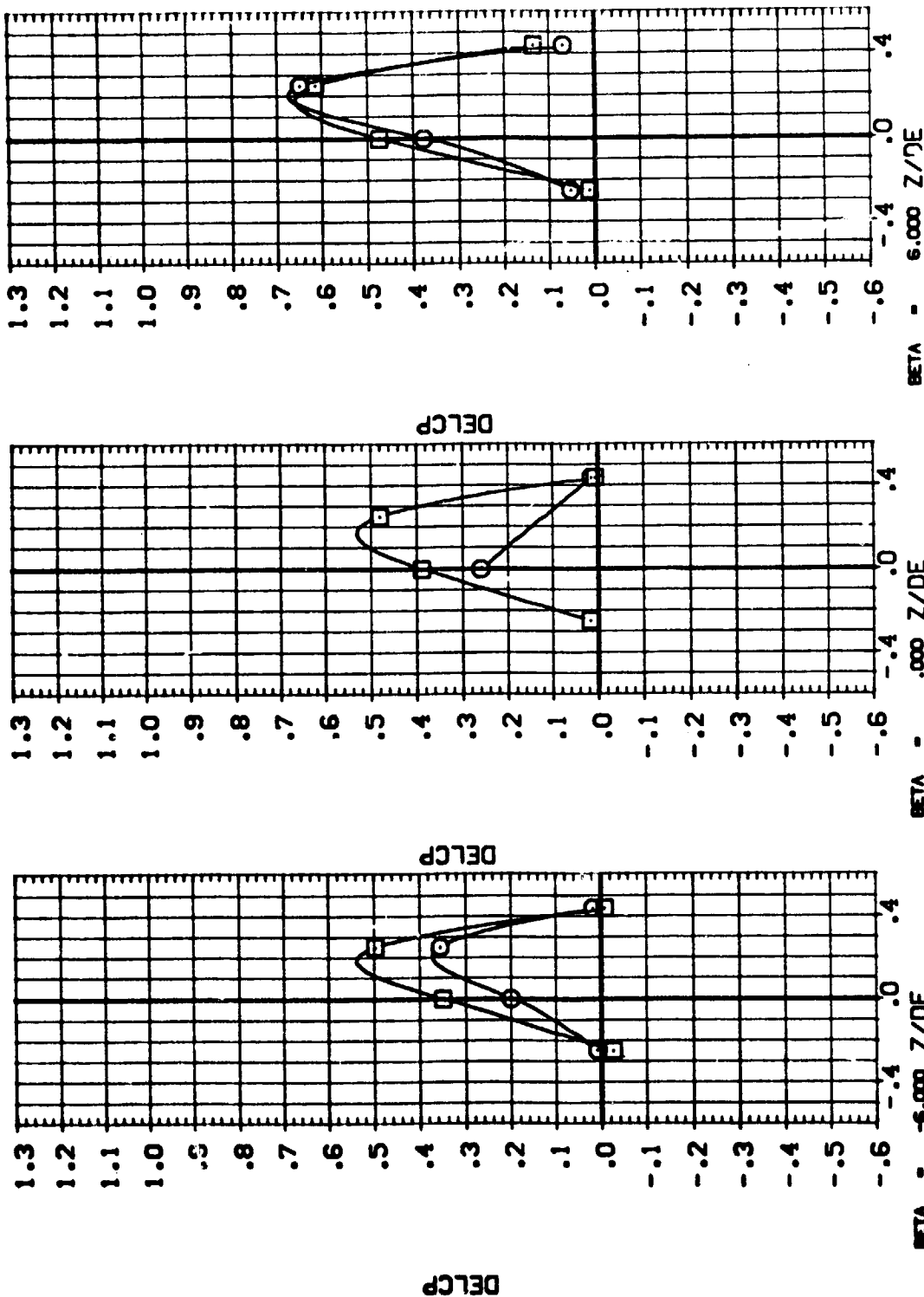


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .928



DATA SET SYMBOL: CAL 114-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (SUP008) CAL 114-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 ALPHA POWER CPM SPMR  
 .000 .000 28.310 2.020



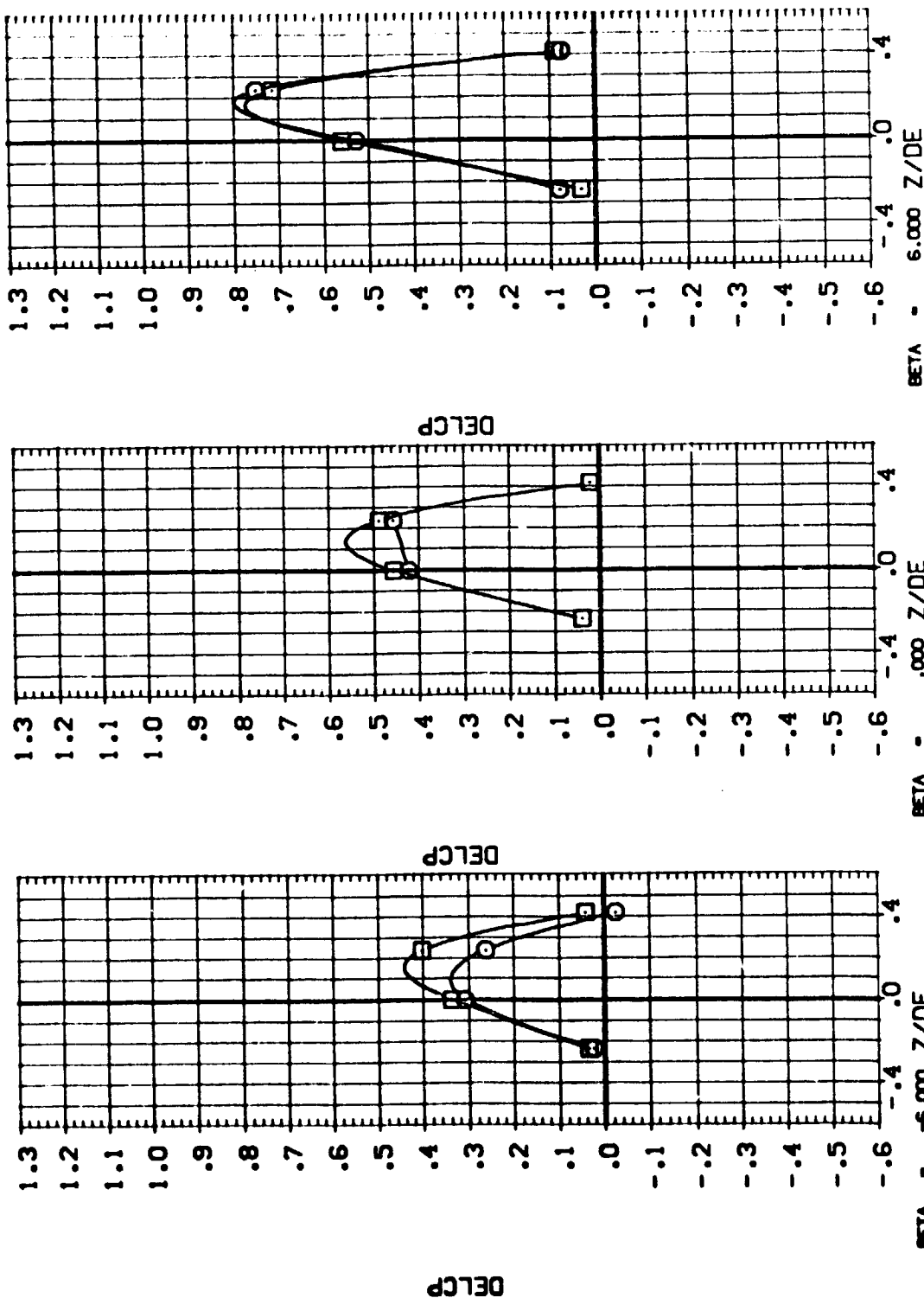
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .058

DATA SET SYMBOL    CONFIGURATION DESCRIPTION    ALPHA    POWER    QPR    SRPR

(SUF006)    CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ:    .000    .000    28.310    2.020

(SUF008)    CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ:    .000    1.000         



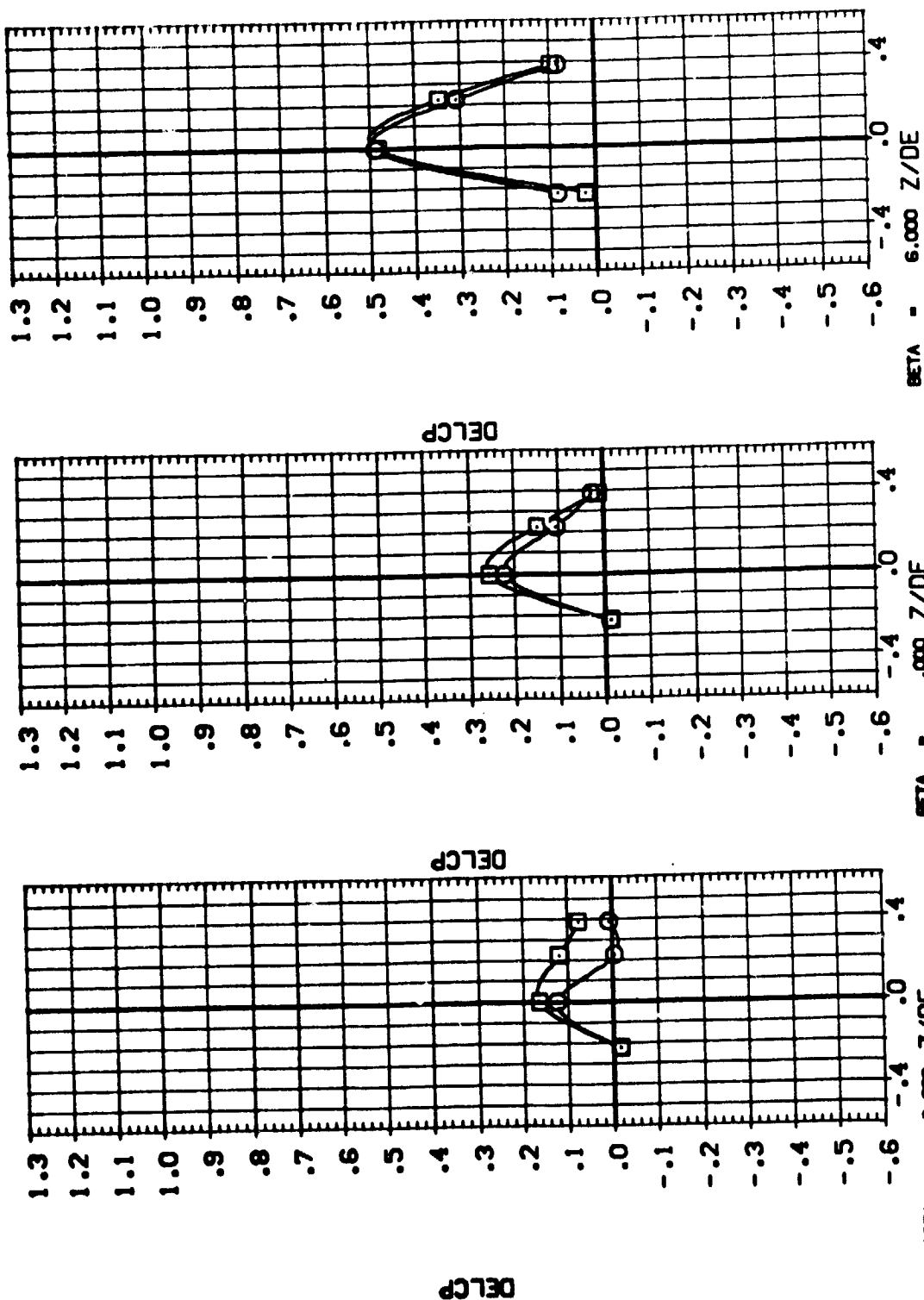
DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200    X/DE = .232



DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (9/1008) CAL T14-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ.  
 (9/1008)

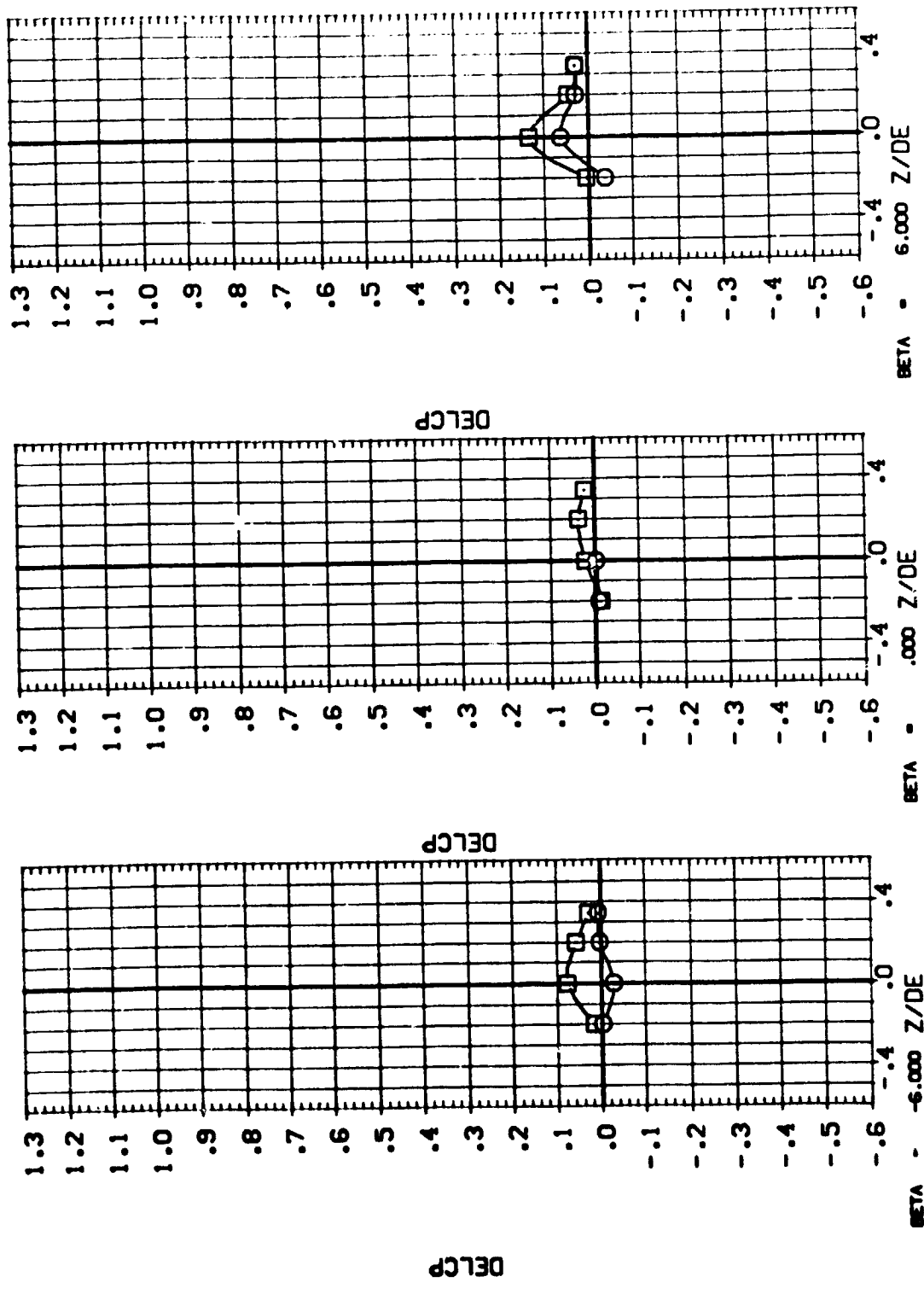
ALPHA .000 POWER .000 C/P 28.310 S/P/R 2.020



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .406

DATA SET SYMBOL: 8  
 (SUFC08)  
 CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.  
 CAL T14-053 IAS6 Q2 + T1 + S1 LOWER RH MPS NOZ.  
 ALPHA: .000  
 POWER: .000  
 DPR: 28.310  
 SRPR: 2.020

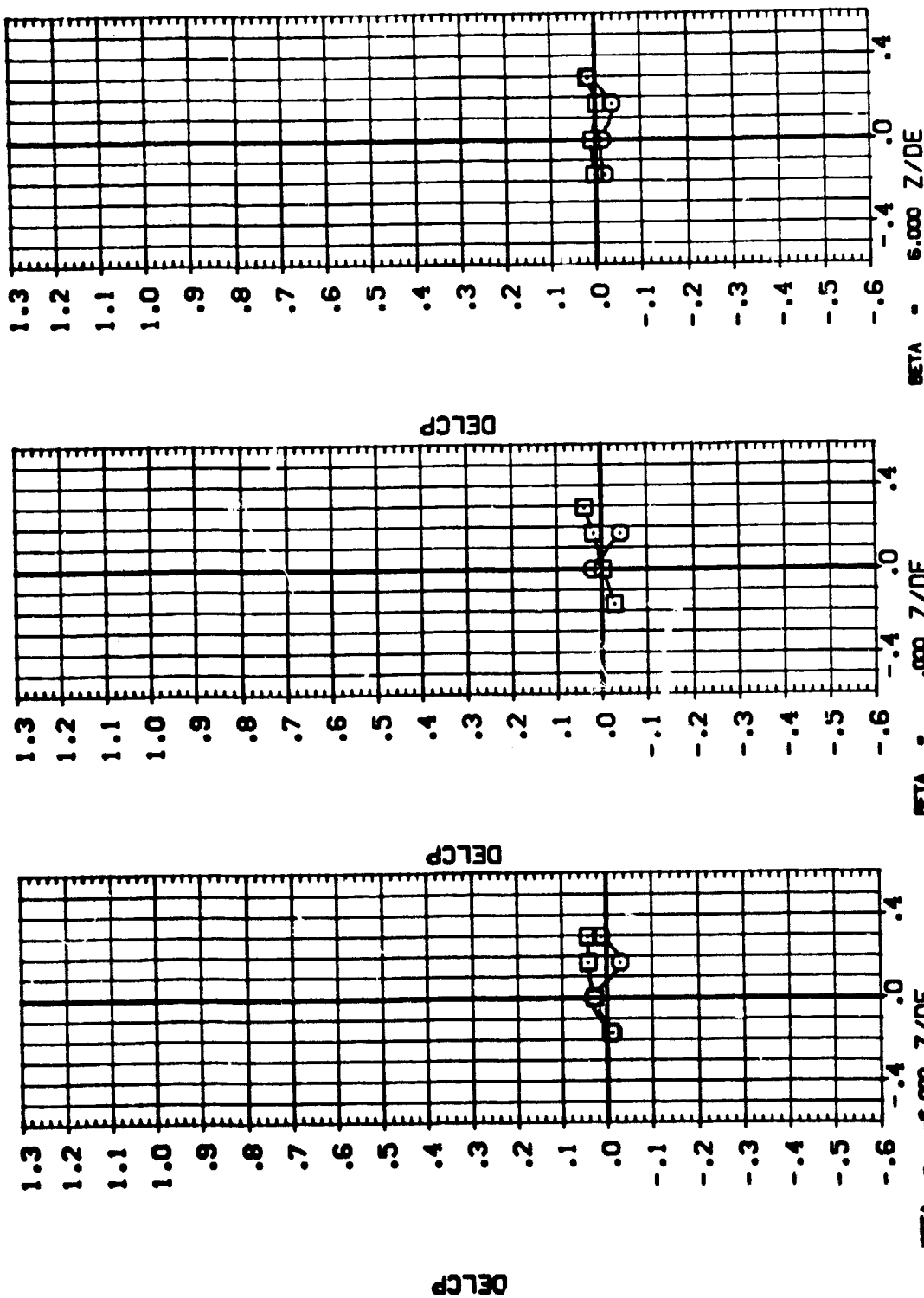


DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .580



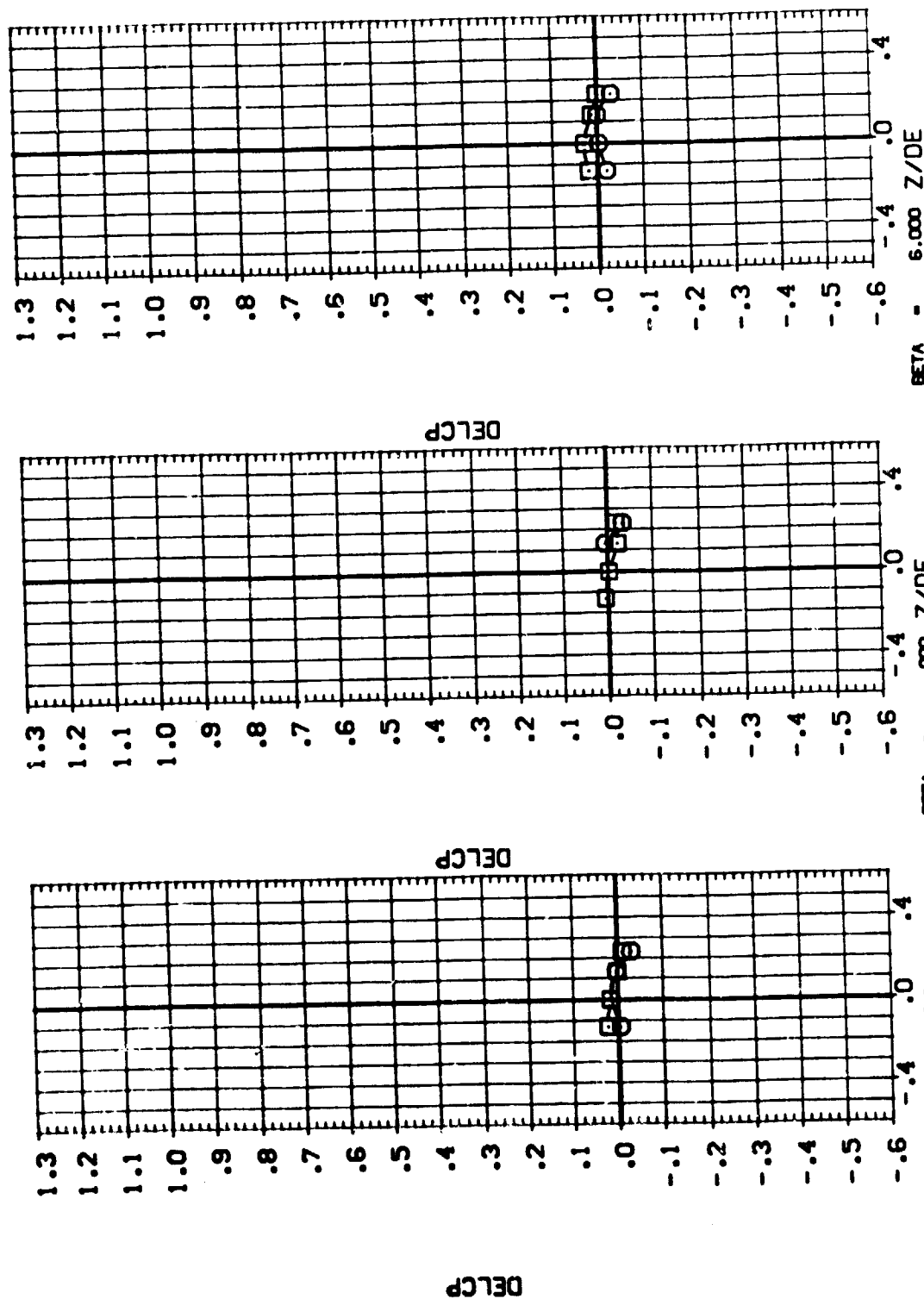
DATA SET SYMBOL: **Q** CONFIGURATION DESCRIPTION: CAL 114-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: ALPHA POWER CPR SWPR  
 (SUFO08) CAL 114-053 IAS 02 + T1 + S1 LOWER RH MPS NOZ: .000 .000 28.310 2.020  
 (SUFO08)



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

MACH = 1.200 X/DE = .754

DATA SET SYMOL. CONFIGURATION DESCRIPTION ALPHA POWER CPR SRPR  
 (SUF005) CAL T14-053 IAS6 02 : T1 : S1 LOWER RH MPS NOZ: .000 .000 28.310 2.020  
 (SUF008) CAL T14-053 IAS6 02 : T1 : S1 LOWER RH MPS NOZ: .000 1.000



DELTA PRESSURE DISTRIBUTION, LOWER RH MPS NOZZLE

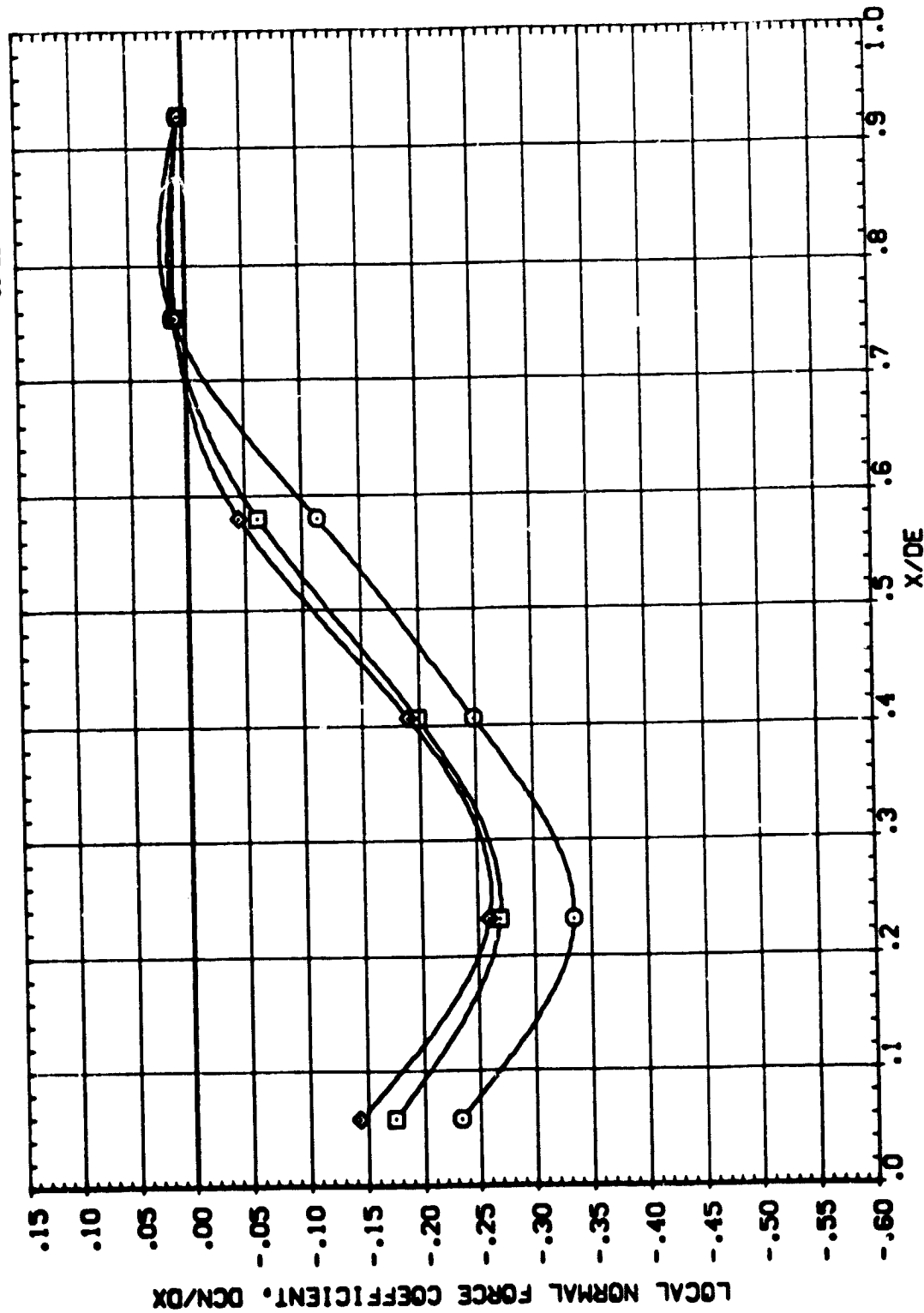
MACH = 1.200 X/DE = .928





CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA01)

SYMBOL		ALPHA		BETA		PARAMETRIC VALUES		REF		REFERENCE INFORMATION	
□	◇	-8.000	0.000	0.000	0.000	POWER	0.000	49.4000	50.4000	50.4000	50.4000
	○	-8.000	0.000	0.000	0.000	GY1	-9.000	50.7000	50.7000	50.7000	50.7000
	◇	6.000	0.000	0.000	0.000	GY2	-9.000	158.0000	158.0000	158.0000	158.0000
	○	6.000	0.000	0.000	0.000	GY3	0.000	0.0000	0.0000	0.0000	0.0000
								SCALE	0.0190	SCALE	0.0190

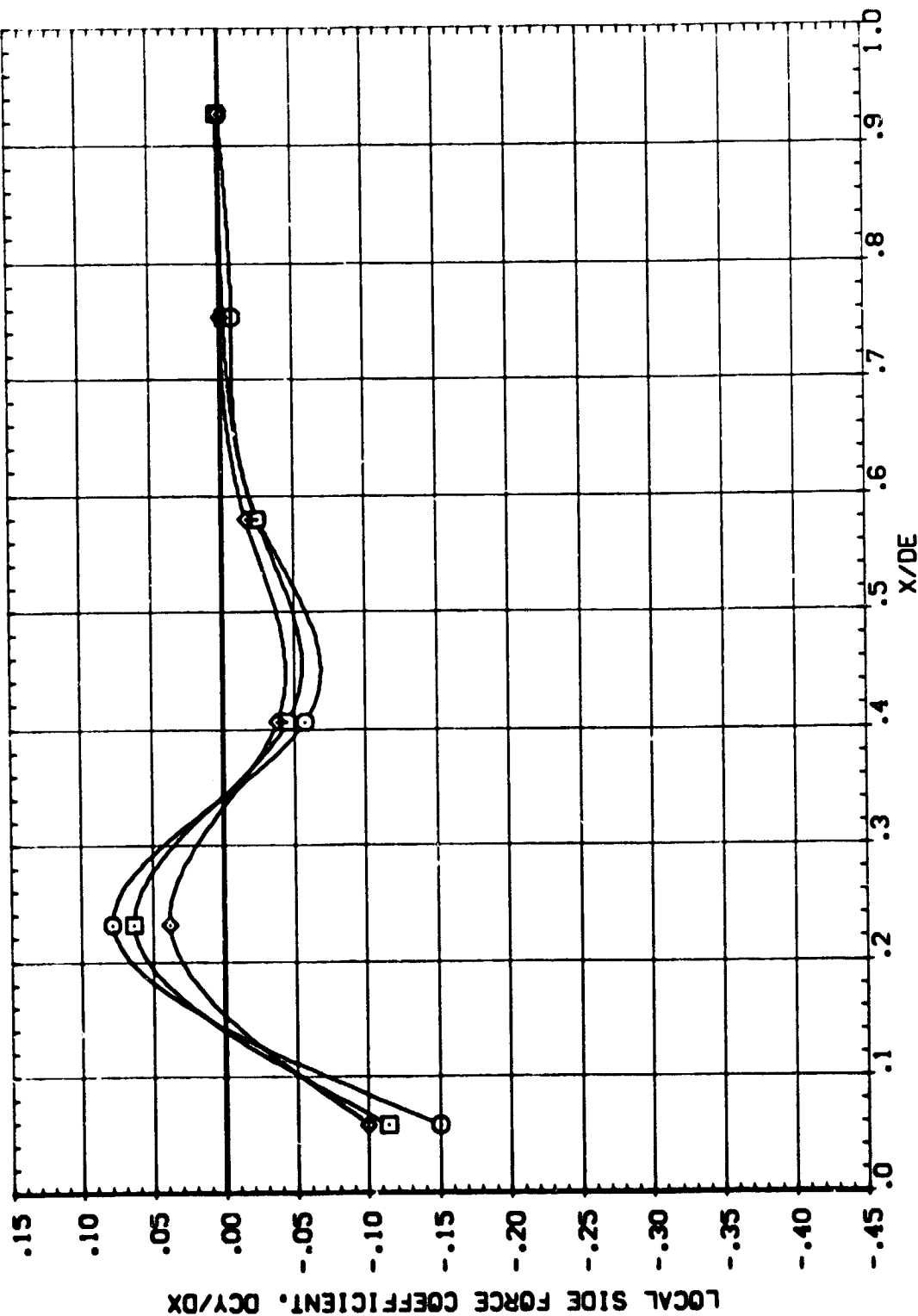


PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA01)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	49.4000	SO.FT.
○	-8.000	.000	.000	LREF	90.7000	INCHES
□	.000	11.000	GY1	BREF	90.7000	INCHES
◇	6.000	.000	GY2	XHPP	158.0000	INCHES
		GP2	GY3	YHPP	.0000	INCHES
		GP3		ZHPP	.0000	INCHES
				SCALE	.0190	SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A3MACH = .90

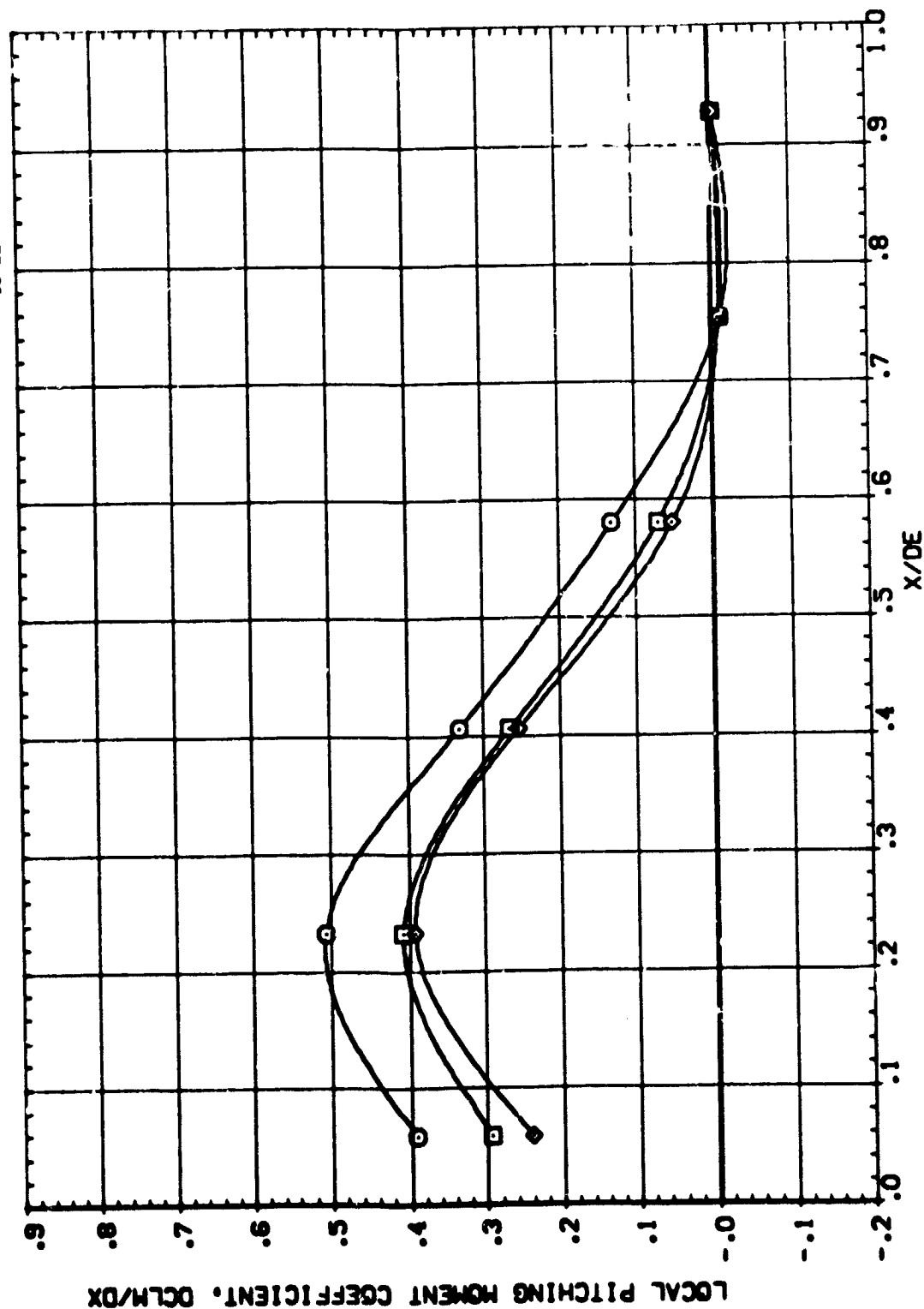
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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFAD1)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	ALPHA	BETA	POWER	SRF	49.4000	50.4000	50.47
○	-9.000	0°1	0.000	LINE	50.7000	50.7000	INOES
□	.000	0°2	-9.000	BRF	50.7000	50.7000	INOES
◇	6.000	0°3	-9.000	X-PP	159.0000	159.0000	INOES
				Y-PP	.0000	.0000	INOES
				Z-PP	.0000	.0000	INOES
				SCALE	.0180	.0180	SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

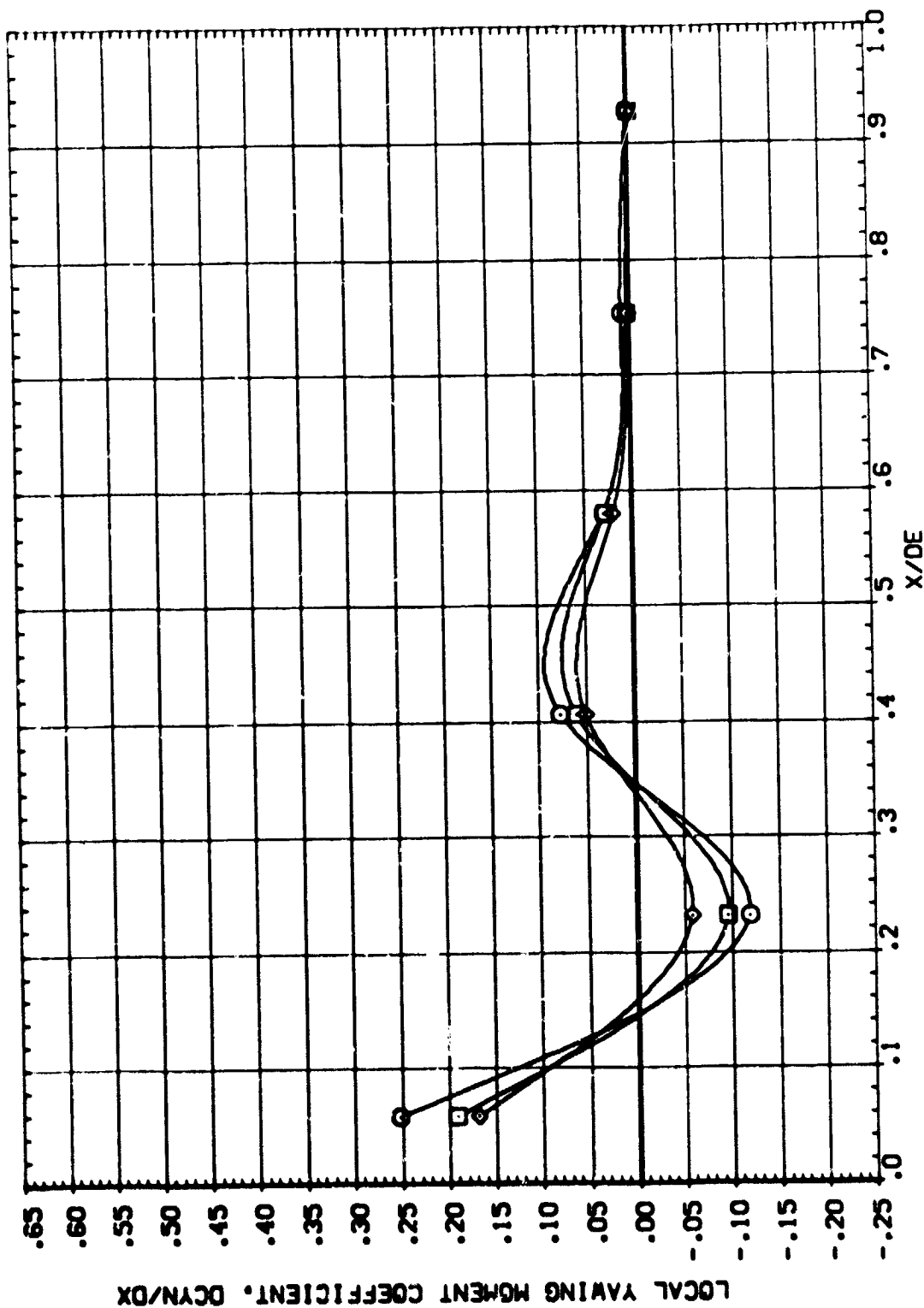
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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA01)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	ALPHA	BETA	POWER	SREF	49.4000	50.4000	50.4000
○	-8.000	.000	.000	LREF	50.7000	50.7000	50.7000
□	.000	11.000	0Y1	BREF	159.0000	159.0000	159.0000
◇	6.000	.000	0Y2	XTRP	.0000	.0000	.0000
		.000	0Y3	YTRP	.0000	.0000	.0000
				ZTRP	.0000	.0000	.0000
				SCALE	.0190	.0190	SCALE



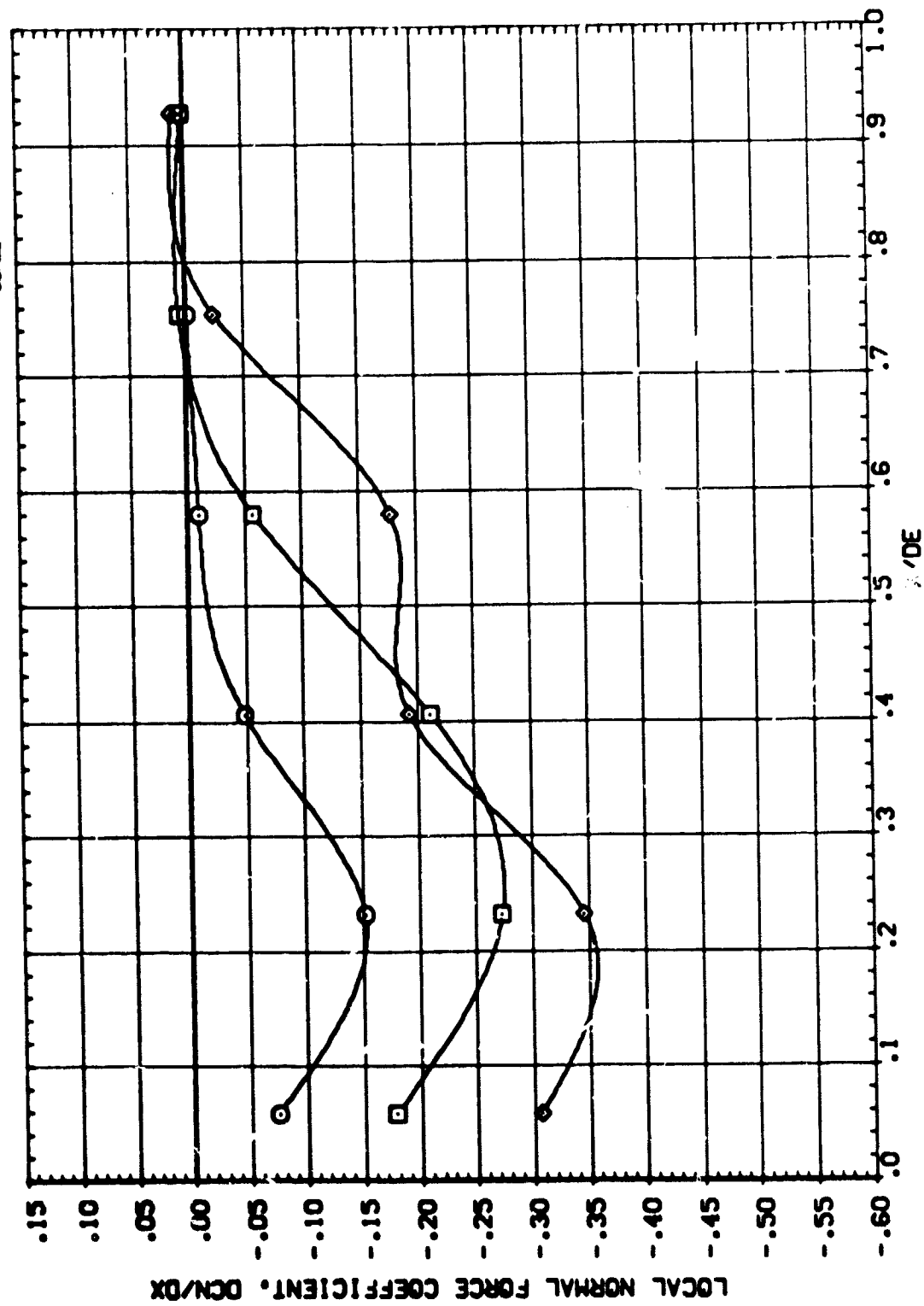
PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A) MACH = .90



CAL T:4-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA02)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	REF LINE	49-4000	50-7000	50-7000
○	-6.000	GP1	.000	REF	50-7000	50-7000	50-7000
□	.000	GP2	-9.000	REF	158-0000	158-0000	158-0000
◇	6.000	GP3	.000	REF	158-0000	158-0000	158-0000
				SCALE	.0000	.0000	.0000
					.0150		



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

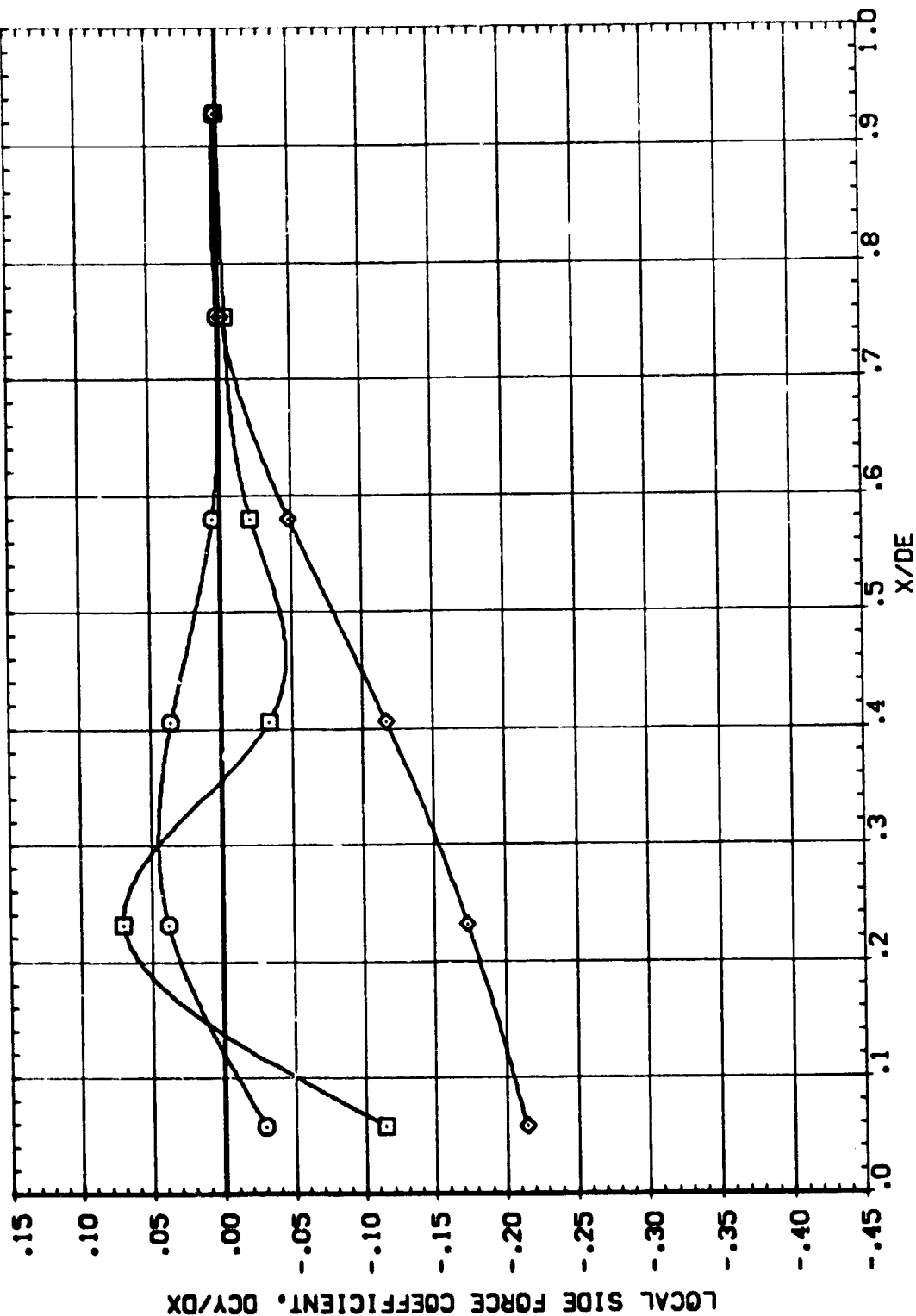
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CAL T14-053 IA36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA02)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	BETA	ALPHA	POWER	SREF	49.4000	50.4000
○	-6.000	G1	.000	LREF	90.7000	90.7000
□	.000	G2	11.000	BREF	90.7000	90.7000
◇	6.000	G3	.000	XPRP	158.0000	158.0000
				YPRP	.0000	.0000
				ZPRP	.0000	.0000
				SCALE	.0190	.0190



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

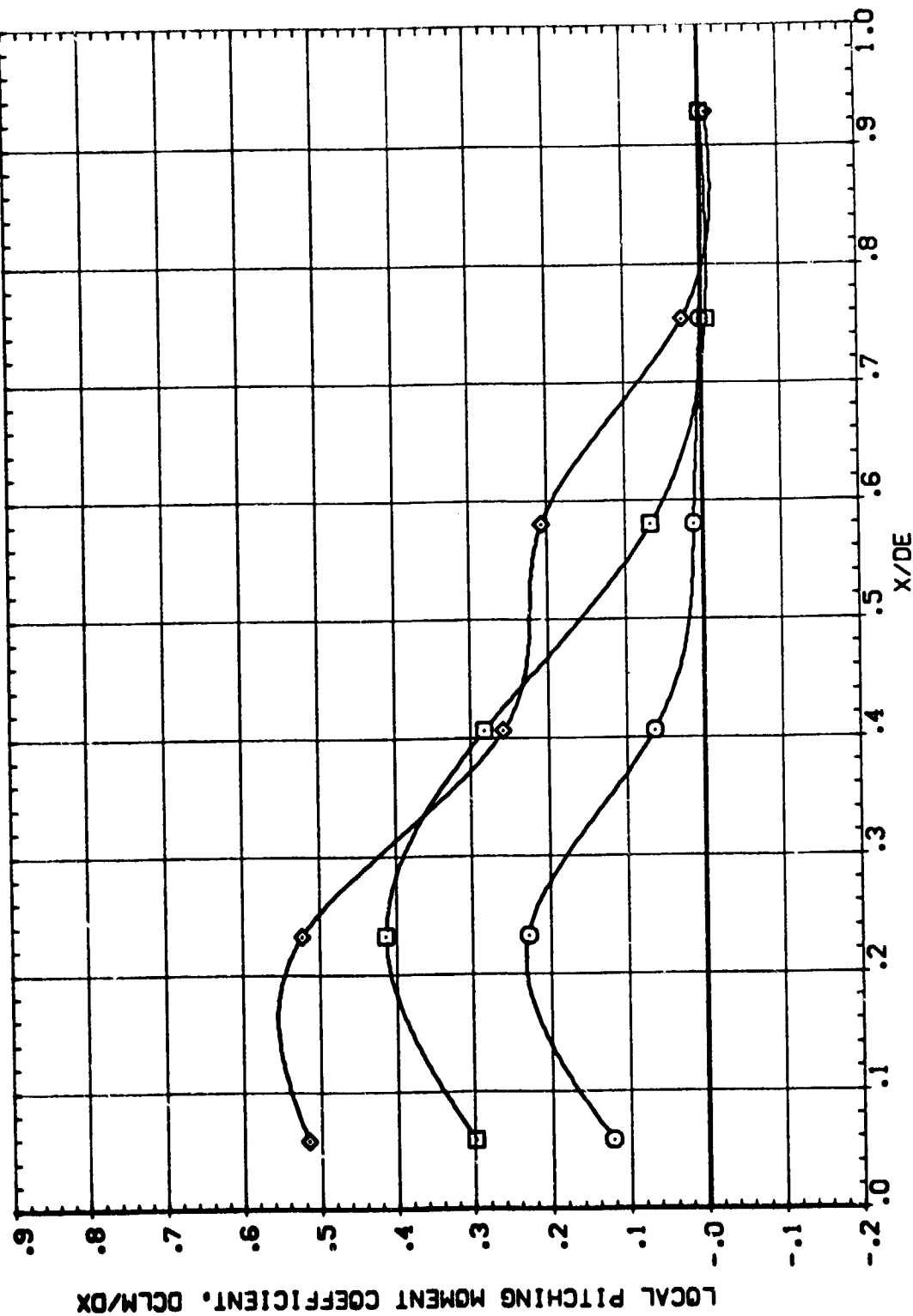
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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF002)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES	REFERENCE INFORMATION
◇	-6.000	GP1	.000 POWER	SREF 49.4000 SQ.FT.
□	.000	GP2	11.000 GY1	LREF 90.7000 INCHES
○	6.000	GP3	.000 GY2	BREF 90.7000 INCHES
			.000 GY3	XREF 158.0000 INCHES
			.000	YREF .0000 INCHES
			.000	ZREF .0000 INCHES
			.0190	SCALE

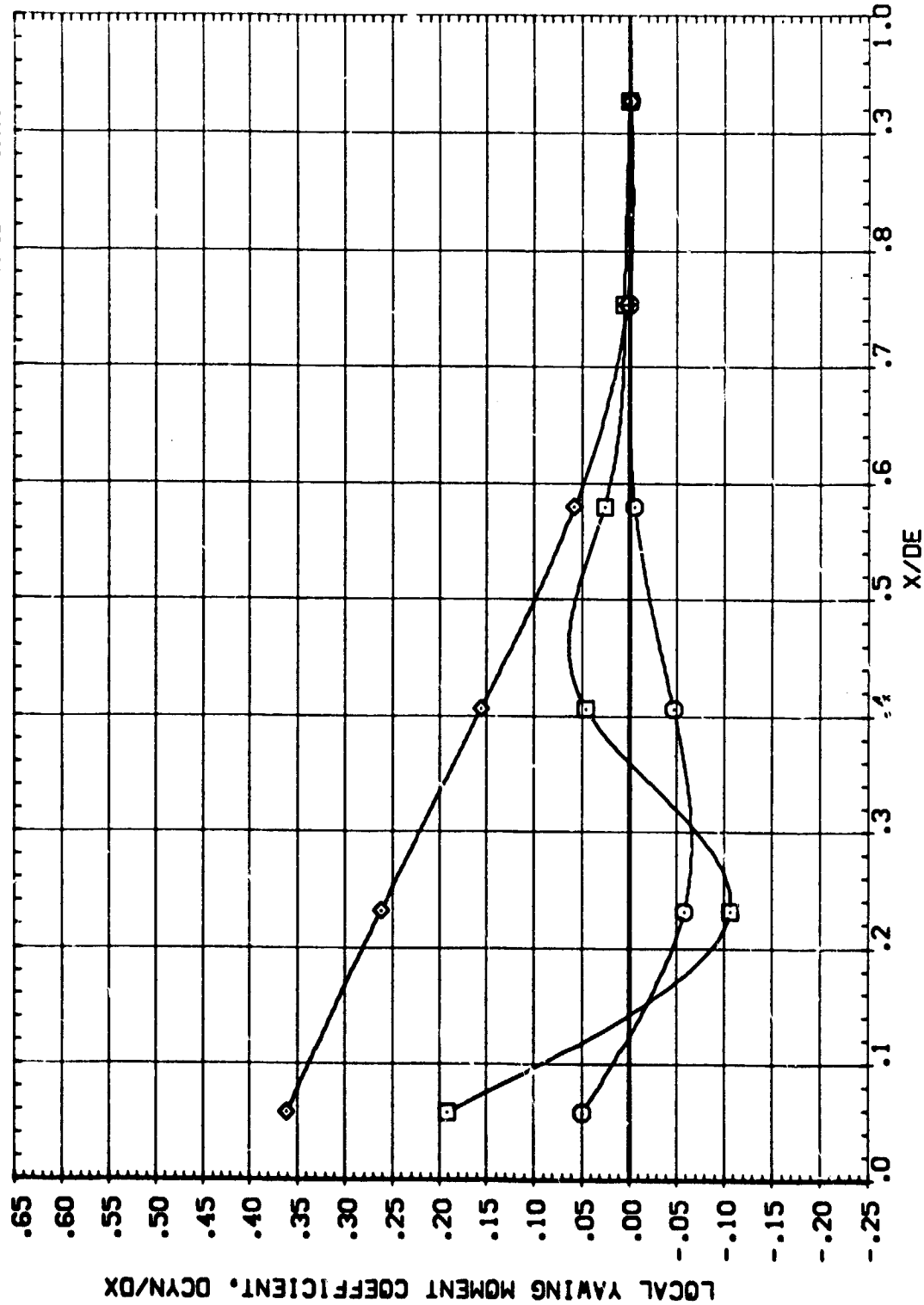


PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFAD02)

SYMBOL	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION				
		ALPHA	POWER	GY1	SREF	49.4000	50.4000	50.4000	50.4000
□	-6.000	GP1	11.000	-9.000	LREF	50.7000	50.7000	50.7000	50.7000
◇	6.000	GP2	.000	-9.000	BREF	158.0000	158.0000	158.0000	158.0000
		GP3	.000	.000	XMRP	.0000	.0000	.0000	.0000
					YMRP	.0000	.0000	.0000	.0000
					ZMRP	.0000	.0000	.0000	.0000
					SCALE	.0190	.0190	.0190	.0190



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

PAGE

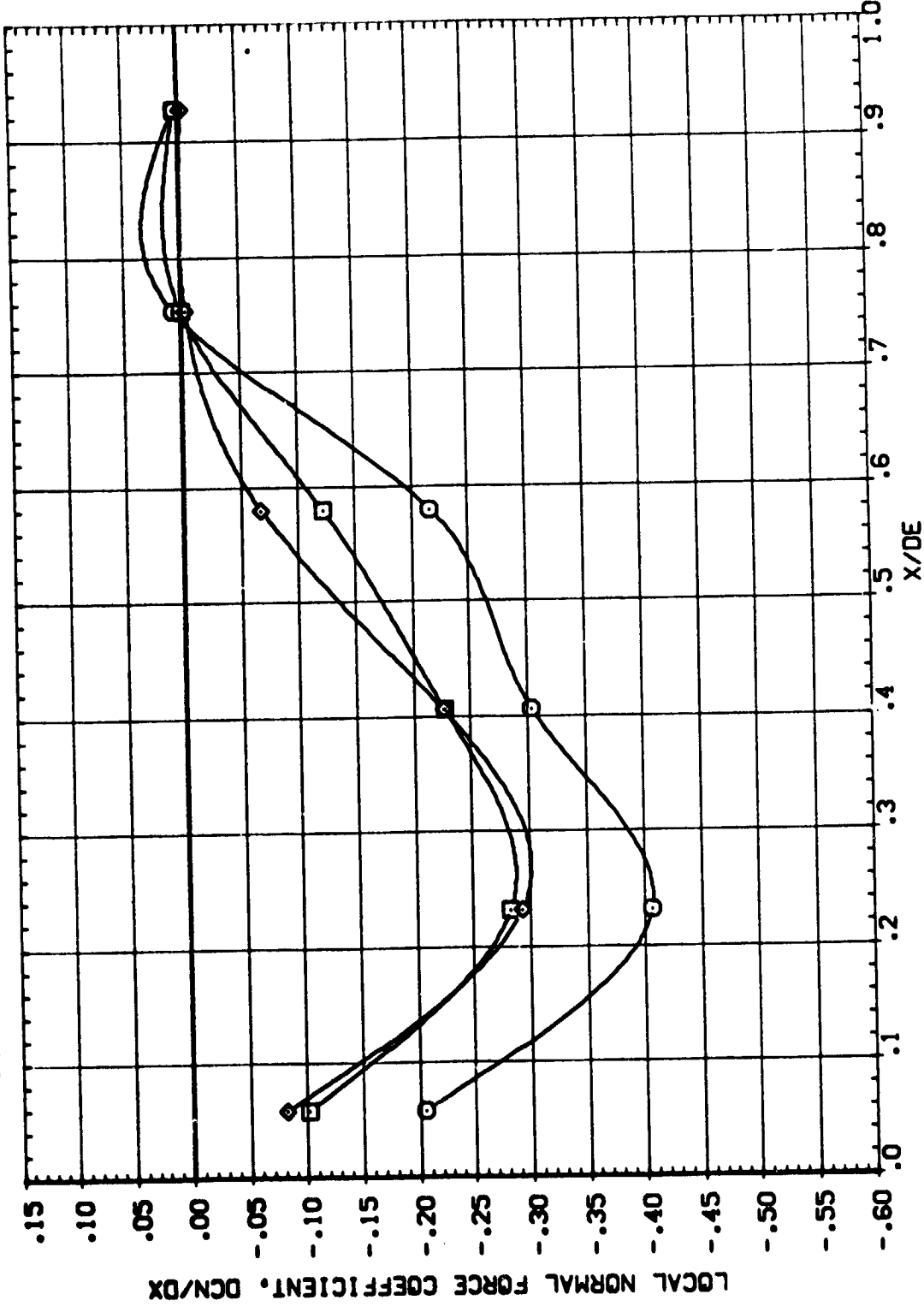
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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA03)

SYMBOL		ALPHA		BETA		PARAMETRIC VALUES		REFERENCE INFORMATION	
□	◇	-9.000	6.000	.000	.000	36.200	11.000	SREF	49.4000
□	◇	.000	.000	.000	.000	.000	.000	LREF	90.7000
□	◇	.000	.000	.000	.000	.000	.000	XREF	158.0000
□	◇	.000	.000	.000	.000	.000	.000	YREF	.0000
□	◇	.000	.000	.000	.000	.000	.000	ZREF	.0000
□	◇	.000	.000	.000	.000	.000	.000	SCALE	.0150



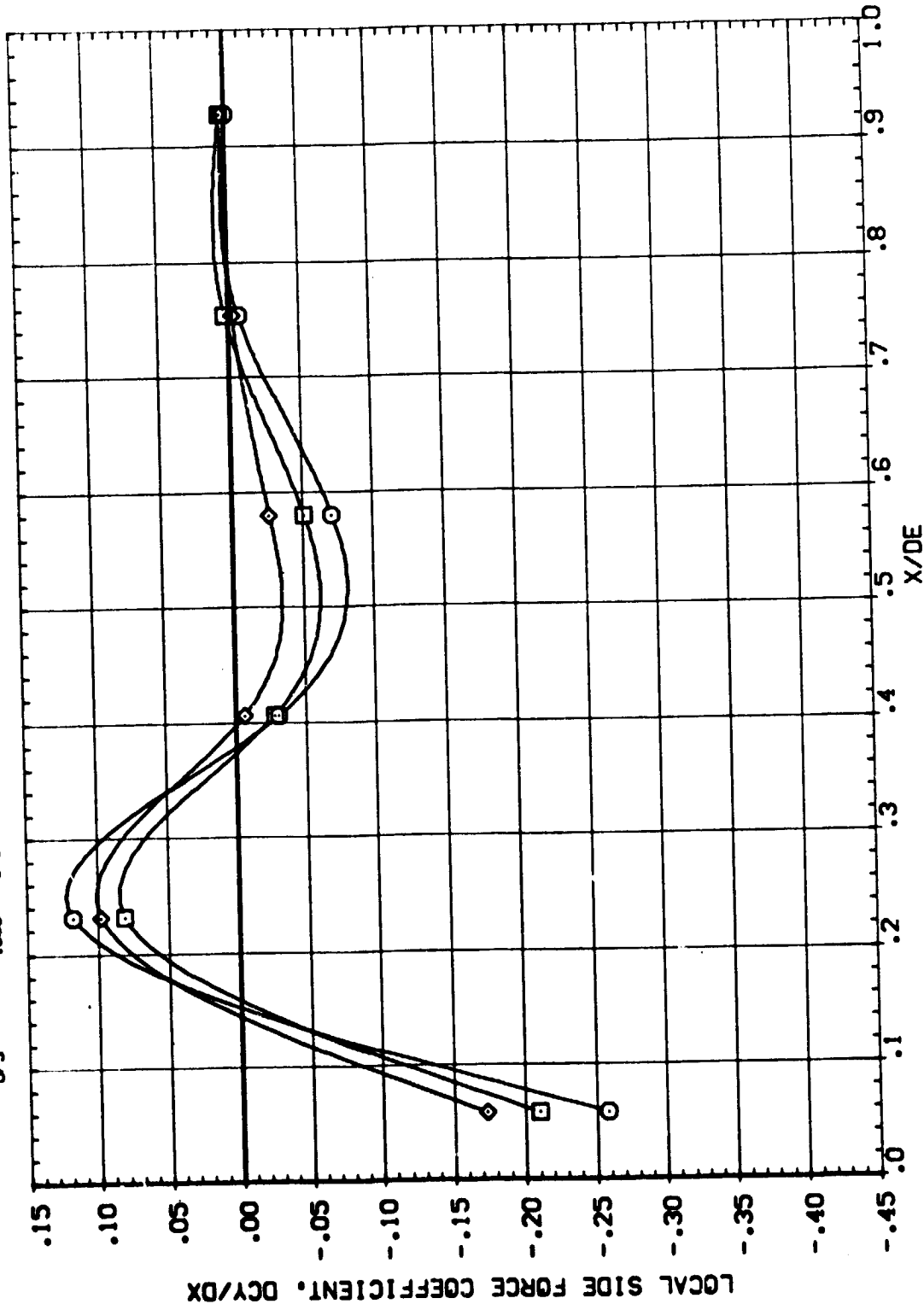
PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90



CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA03)

SYMBOL	ALPHA			BETA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	0	1	2	0	1	2	POWER	1.000	SREF	49.4000	50.000	50.000
○	-8.000	.000	.000	GP1	GP2	GP3	36.200	2.330	LREF	90.7000	90.7000	90.7000
□	6.000	.000	.000	GP1	GP2	GP3	11.000	-9.000	BREF	158.0000	158.0000	158.0000
◇				GP1	GP2	GP3	.000	-9.000	YMRP	.0000	.0000	.0000
							.000	-9.000	ZMRP	.0000	.0000	.0000
									SCALE	.0190	.0190	.0190



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

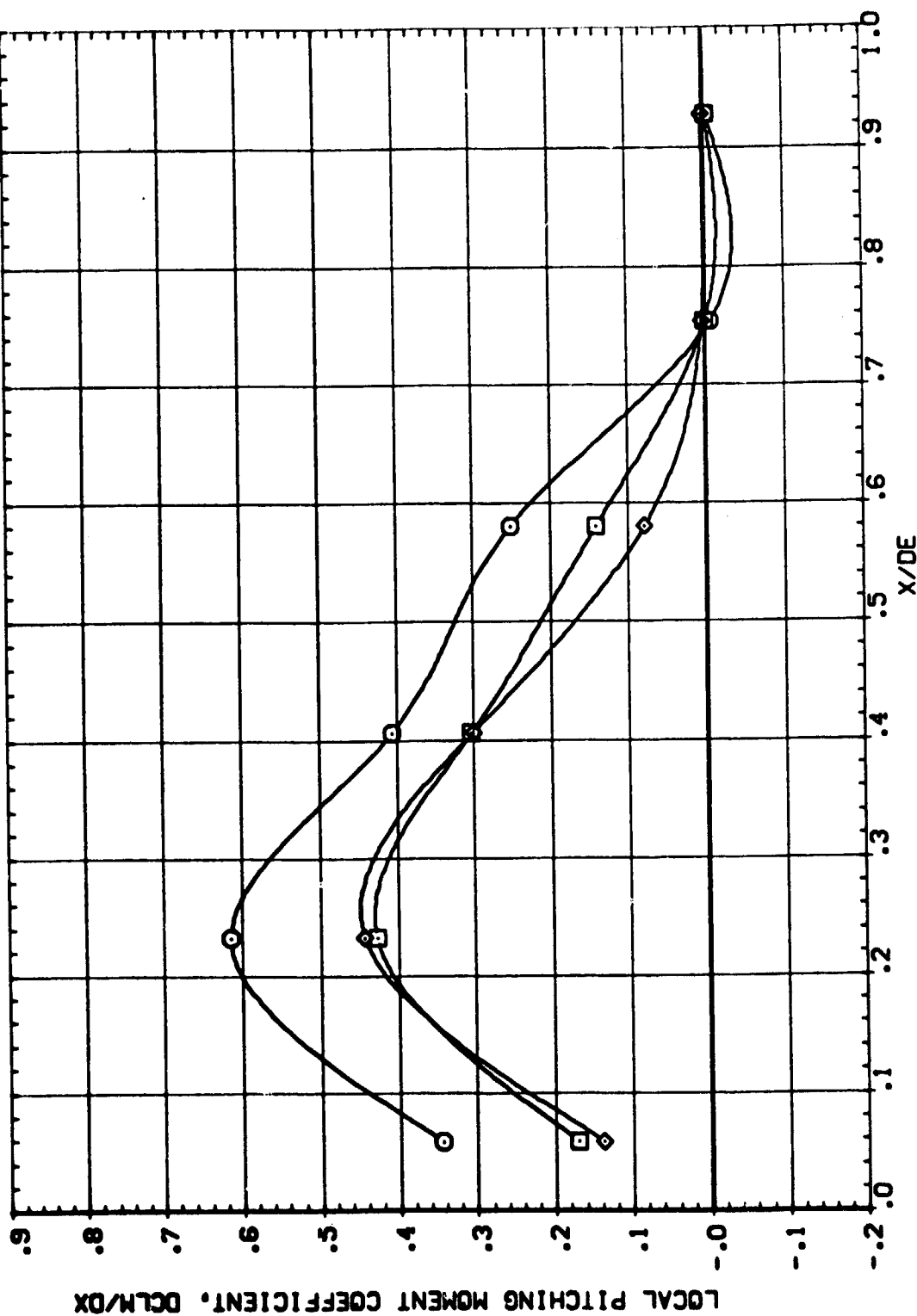
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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF A03)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	ALPHA	BETA	POWER	SREF	49.4000	50.4000	50.4000
○	-8.000	.000	.000	UREF	90.7000	90.7000	90.7000
□	.000	36.200	50.000	YREF	158.0000	158.0000	158.0000
◇	6.000	11.000	50.000	ZREF	.0000	.0000	.0000
		GP1	GP2	SCALE	.0190	.0190	.0190
			GP3				



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

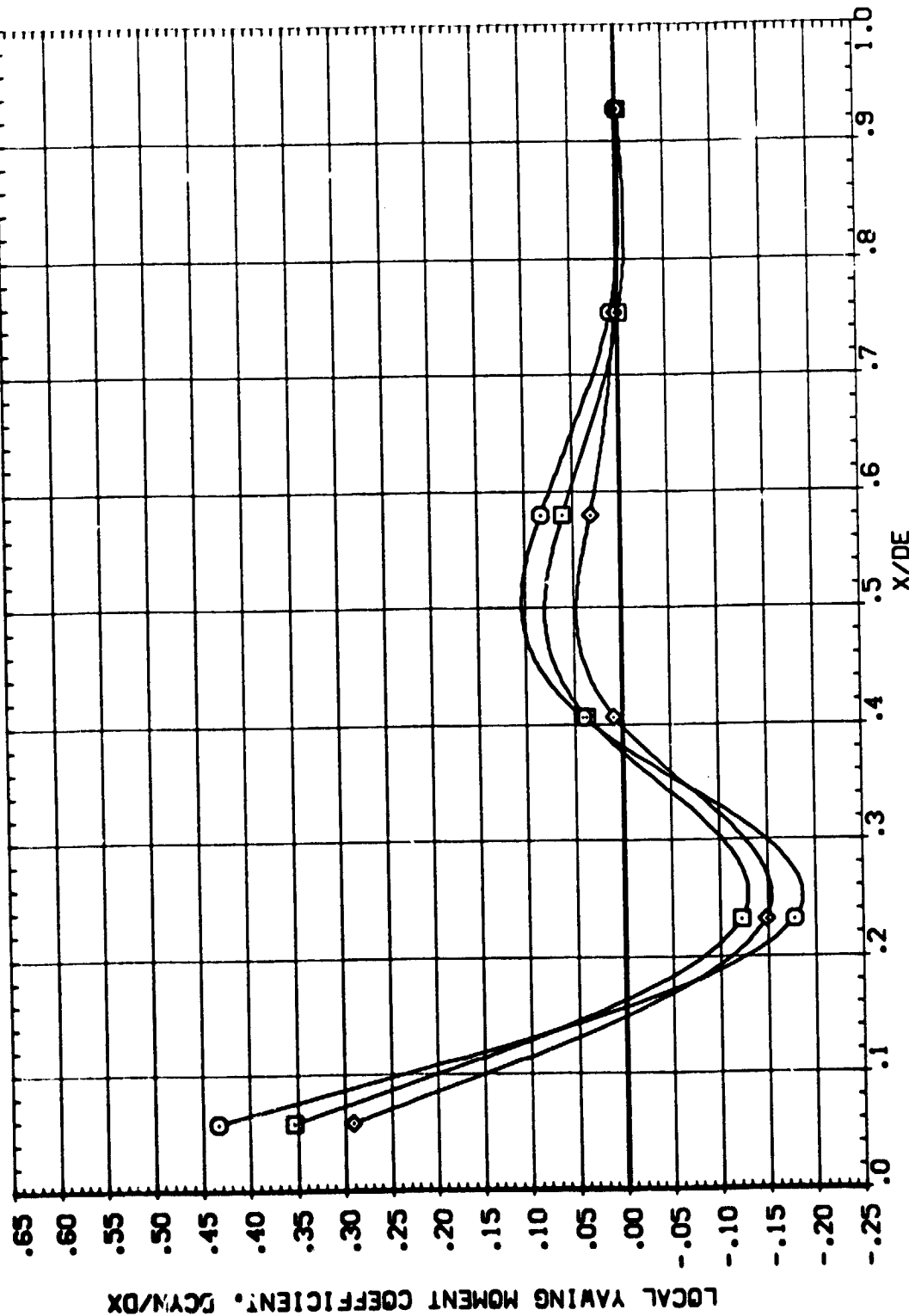
(A)MACH = .90

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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA03)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	49.4000	50.4000
○	-9.000	.000	2.300	LREF	50.7000	50.7000
□	.000	36.200	9.000	BREF	50.7000	50.7000
◇	6.000	11.000	-9.000	XMRP	158.0000	158.0000
		.000	9.000	YMRP	.0000	.0000
		.000	-9.000	ZMRP	.0000	.0000
		.000	-9.000	SCALE	.0190	.0190

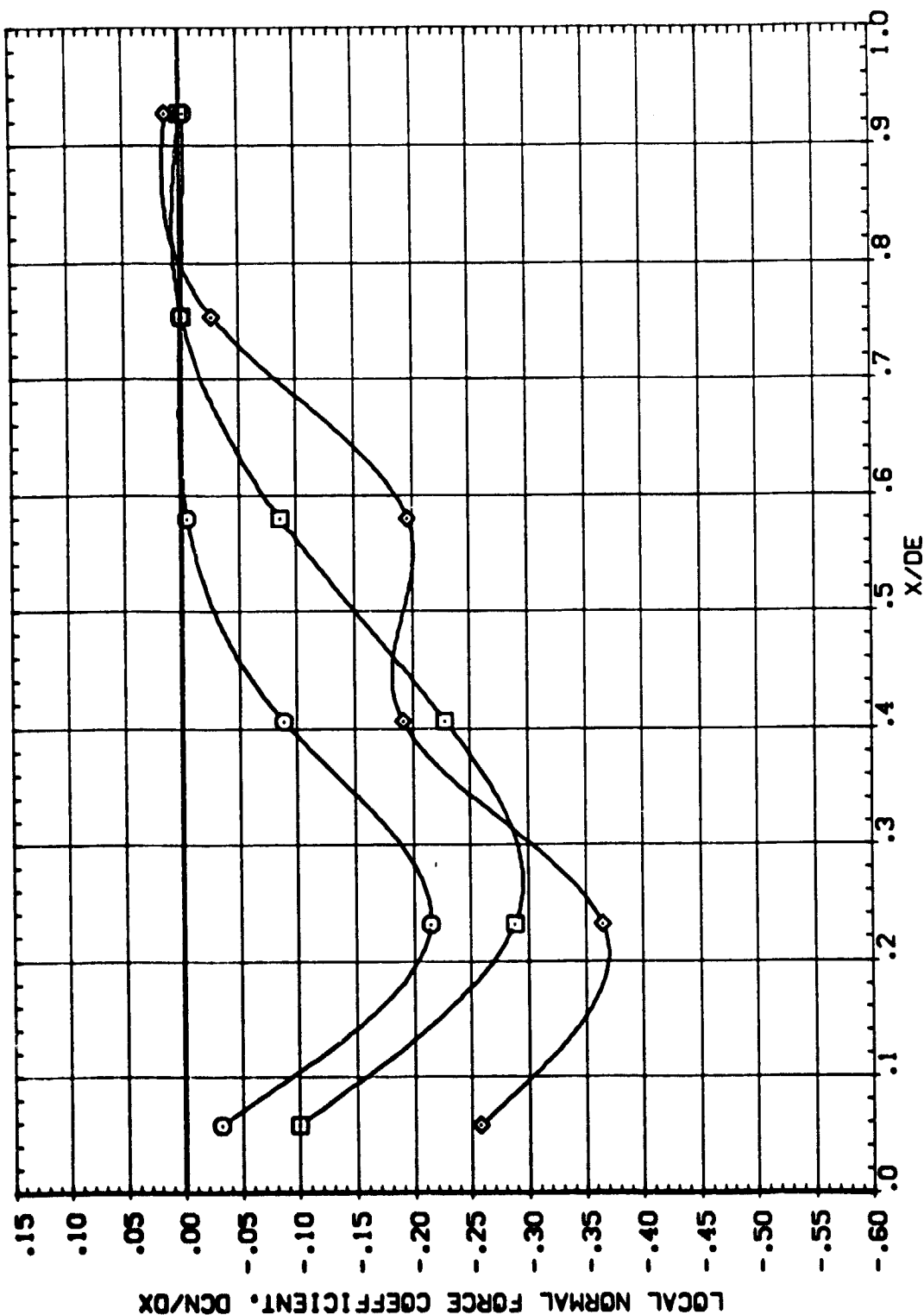


PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

SREF	49.4000	50. FT.
LREF	90.7000	INCHES
BREF	50.7000	INCHES
XAPP	158.0000	INCHES
YAPP	.0000	INCHES
ZAPP	.0000	INCHES
SCALE	.0150	SCALE

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES
□	-5.000	GP4	POWER .000
□	.000	GP4	SR4PR 35.200
◇	5.000	GP1	GV1 11.000
		GP2	GV2 .000
		GP3	GV3 .000

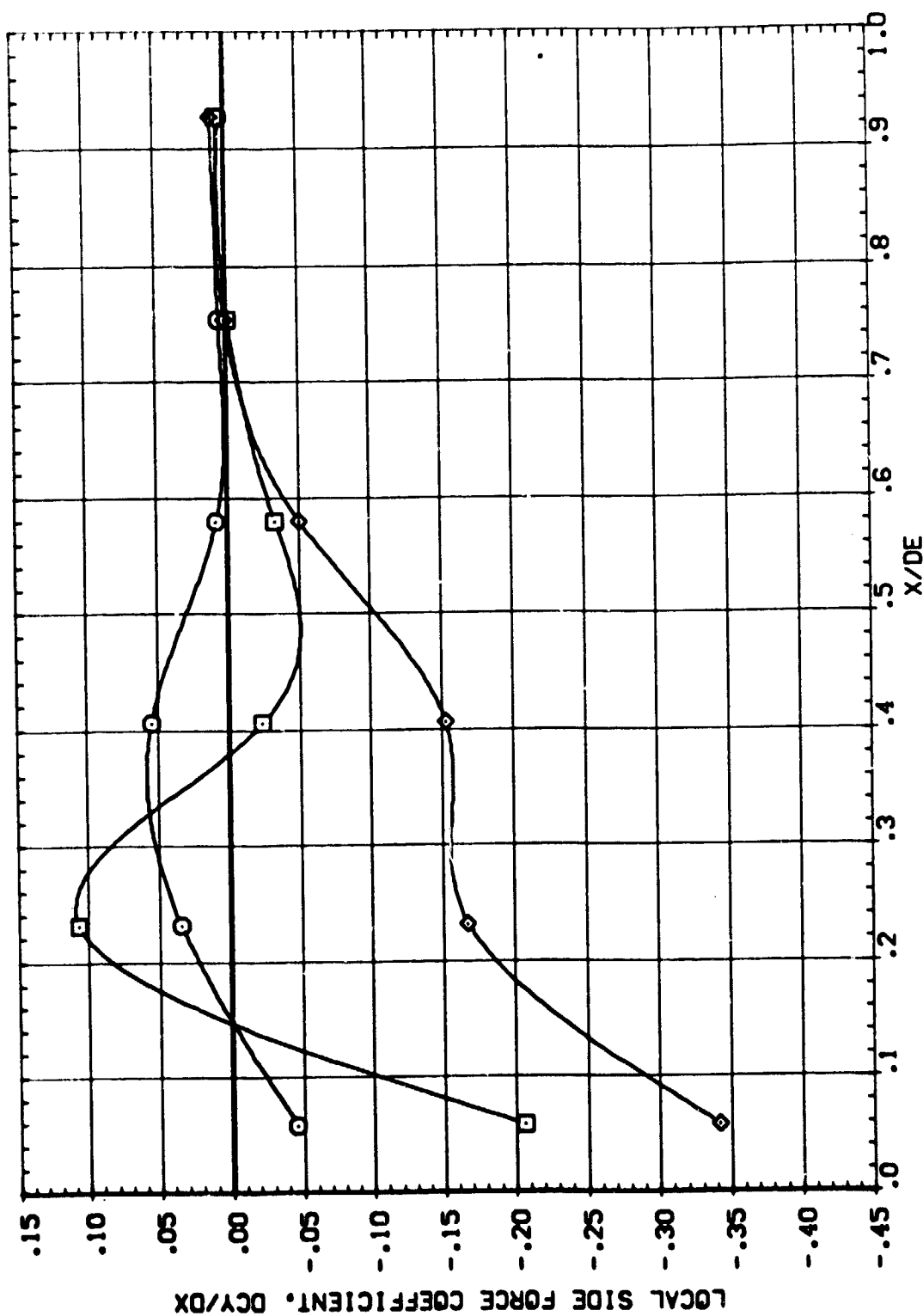


# PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

$$(\Delta)_{MACH} = .90$$

301

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES
○	-6.000	POWER	1.000
□	.000	OPK	2.300
◇	6.000	GP1	-9.000
		GP2	-9.000
		GP3	-9.000



## PLUME EFFECT ON UPPER MPS NOZZLE LOCAL DISTRIBUTIONS

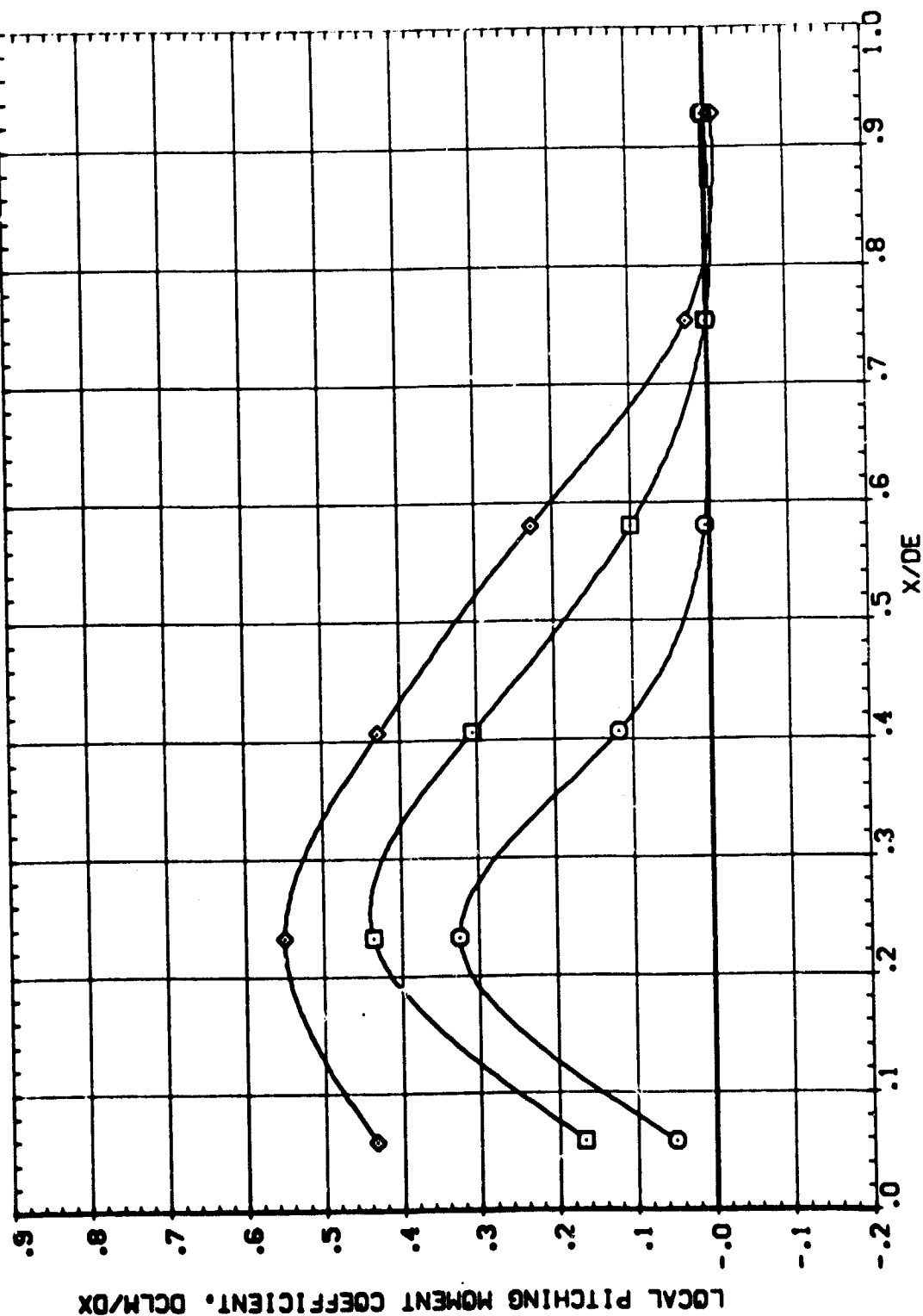
$$(A)MACH = .90$$

302



CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA04)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	LBREF	50.FT.	SCALE
□	-6.000	.000	1.000	49.4000	50.7000	INCHES	
◇	.000	36.200	2.300	50.7000	50.7000	INCHES	
	6.000	11.000	9.000	156.0000	156.0000	INCHES	
		.000	GY1	YPRP	.0000	INCHES	
		.000	GY2	ZPRP	.0000	INCHES	
		.000	GY3	SCALE	.0150	INCHES	



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

PAGE

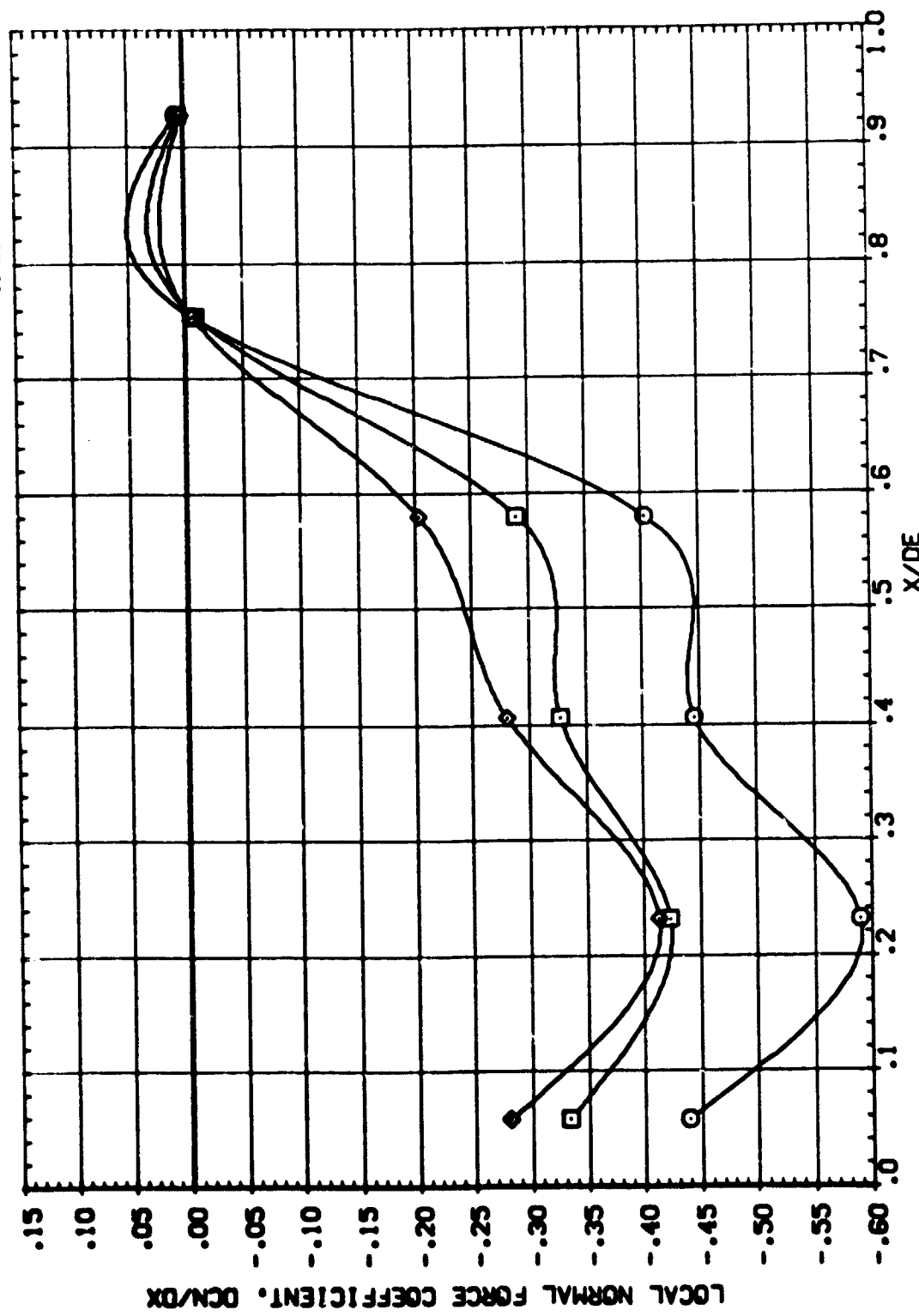
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SYMBOL	BETA	ALPHA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-6.000	ALPHA	.030 POWER	SREF 49.4000 SO.FT.
□	.000	OPR	36.200 SRRPR	LREF 90.7000 INCHES
◇	6.000	CP1	11.000 GY1	BREF 90.7000 INCHES
		CP2	.000 GY2	XPRP 158.0000 INCHES
		CP3	.000 GY3	YPRP .0000 INCHES
				ZPRP .0000 INCHES
				SCALE .0190 SCALE



CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF05)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	SO, FT.	IN-OES
□	-8.000	.000	.000	49.4000	90.7000	IN-OES
◇	.000	11.000	-9.000	90.7000	90.7000	IN-OES
	8.000	.000	-9.000	158.0000	.0000	IN-OES
				YHPP	.0000	IN-OES
				ZHPP	.0000	IN-OES
				SCALE	.0190	SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

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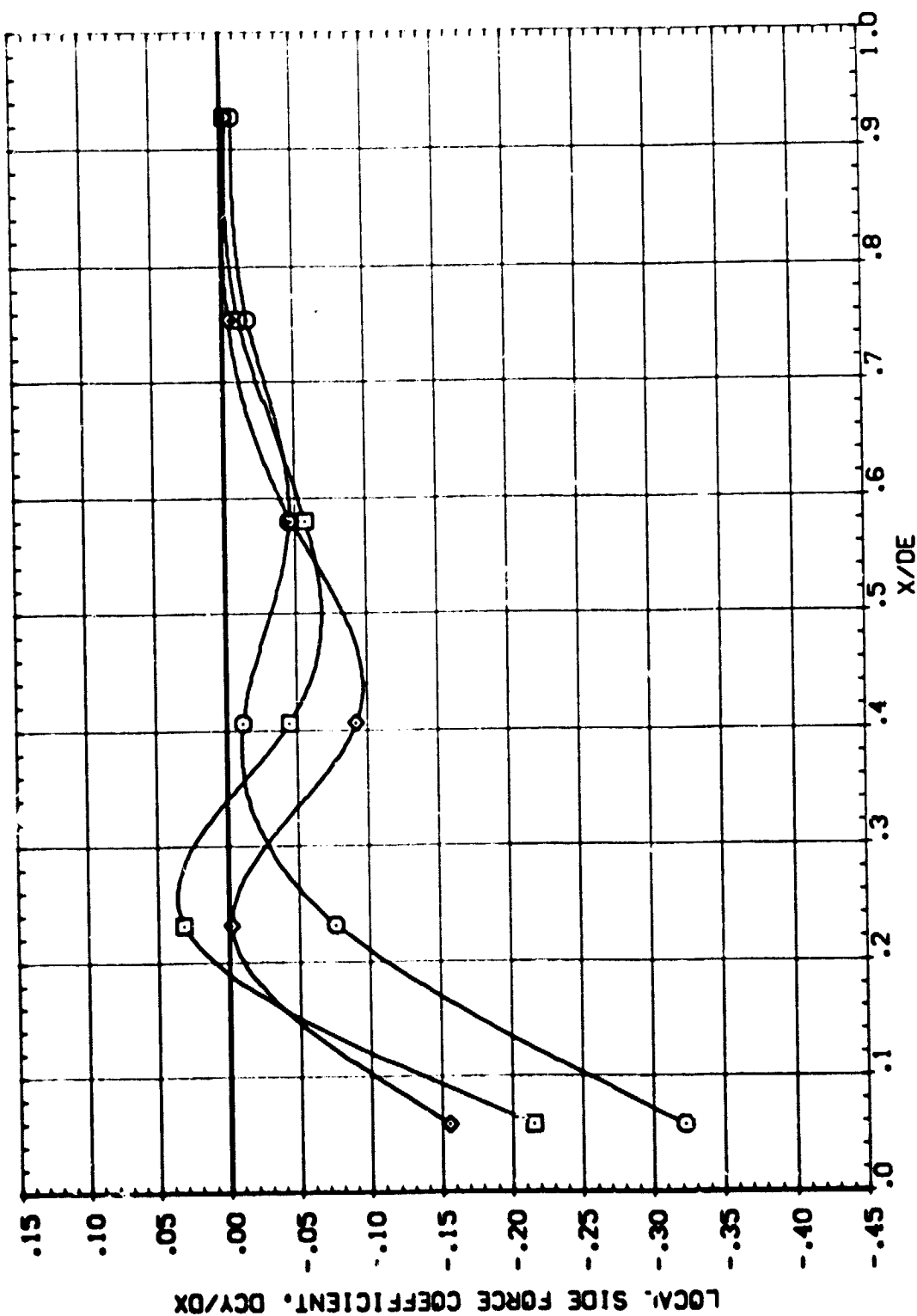
305

100-443887-100

ALPHA	BETA
-0.000	GP1
.000	GP2
6.000	GP3

PARAMETRIC VALUES
.000 POWER
11.000 GY1
.000 GY2
.000 GY3

REFERENCE INFORMATION:	
SREF	49.4000 SQ.FT.
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YREF	.0000 INDES
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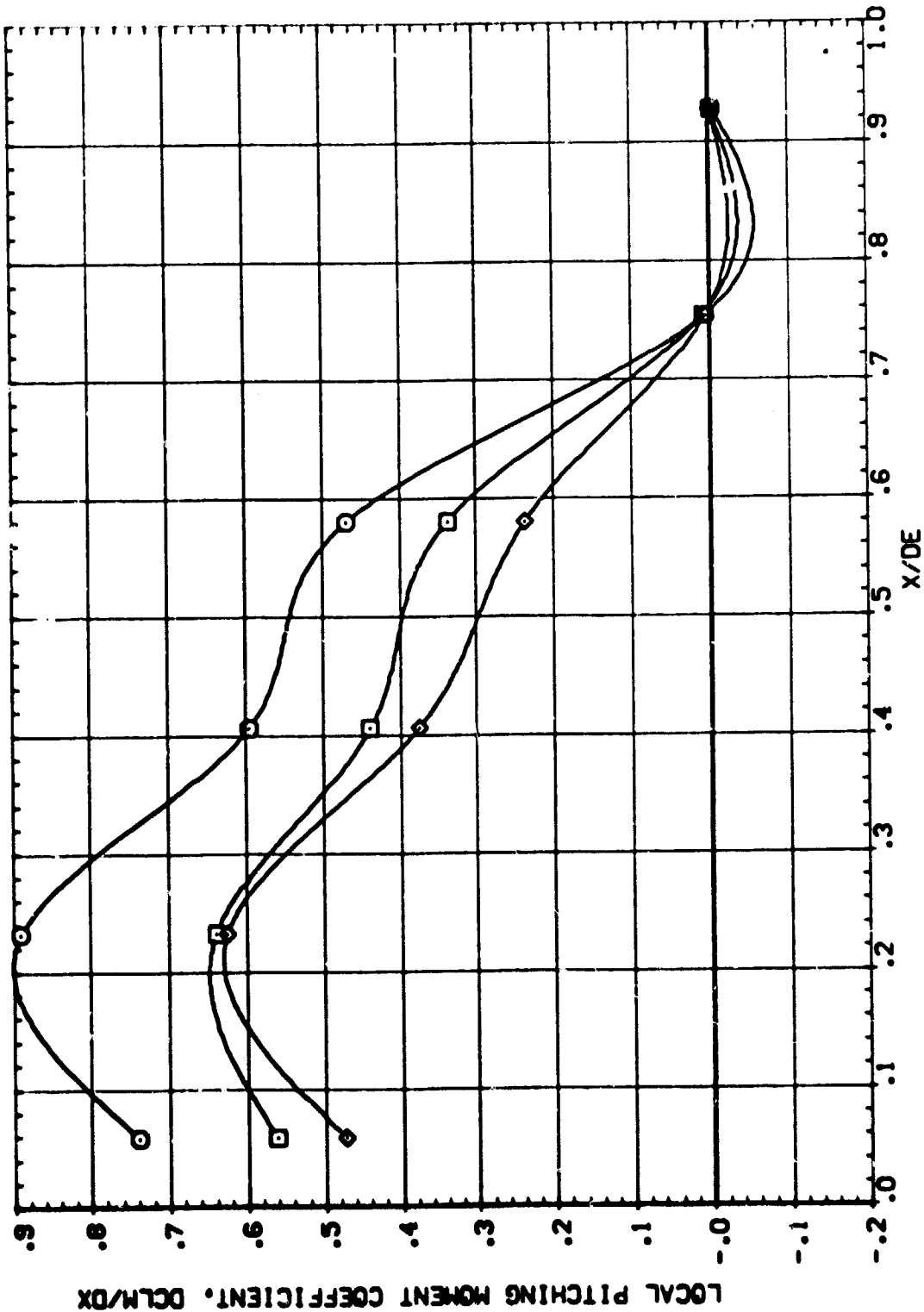
# PLUME EFFECT ON UPPER MPS NOZZLE LOCAL DISTRIBUTIONS

(A)MACH = 1.20

306

CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA05)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	49.4000	90.0000
□	-9.000	.000	.000	LREF	50.7000	IN-ES
◇	.000	11.000	-9.000	BREF	50.7000	IN-ES
	6.000	.000	-9.000	XREF	158.0000	IN-ES
		.000	.000	YREF	.0000	IN-ES
		.000	.000	ZREF	.0000	IN-ES
				SCALE	.0150	SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

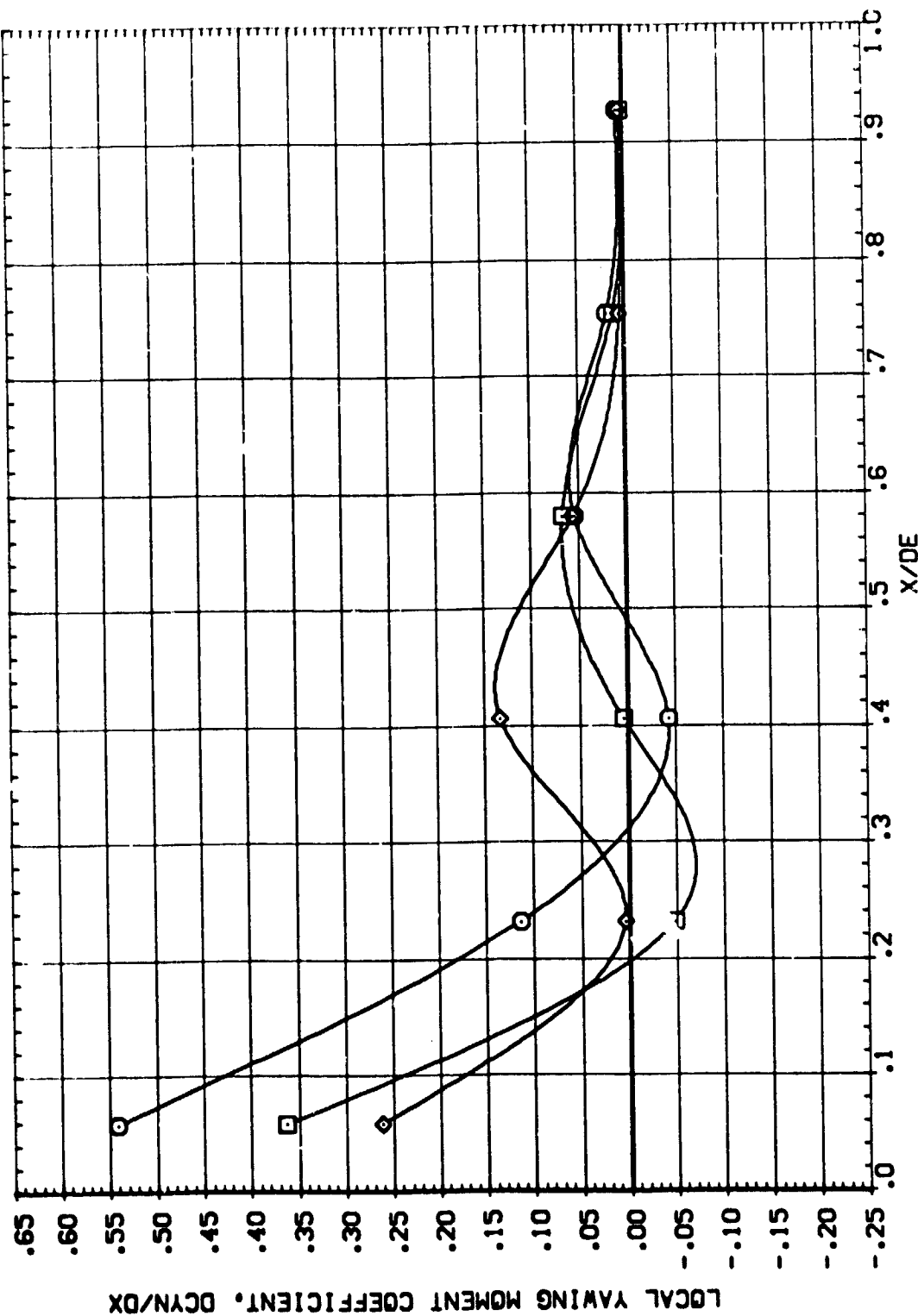
(A)MACH = 1.20

PAGE

307

CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA05)

SYMBL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	49.4000	50.4000
□	-8.000	.000	.000	LREF	50.7000	50.7000
◇	.000	11.000	-9.000	BREF	50.7000	50.7000
	6.000	.000	-9.000	XPRP	158.0000	158.0000
		.000	.000	YPRP	.0000	.0000
		.000	.000	ZPRP	.0000	.0000
				SCALE	.0190	.0190



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

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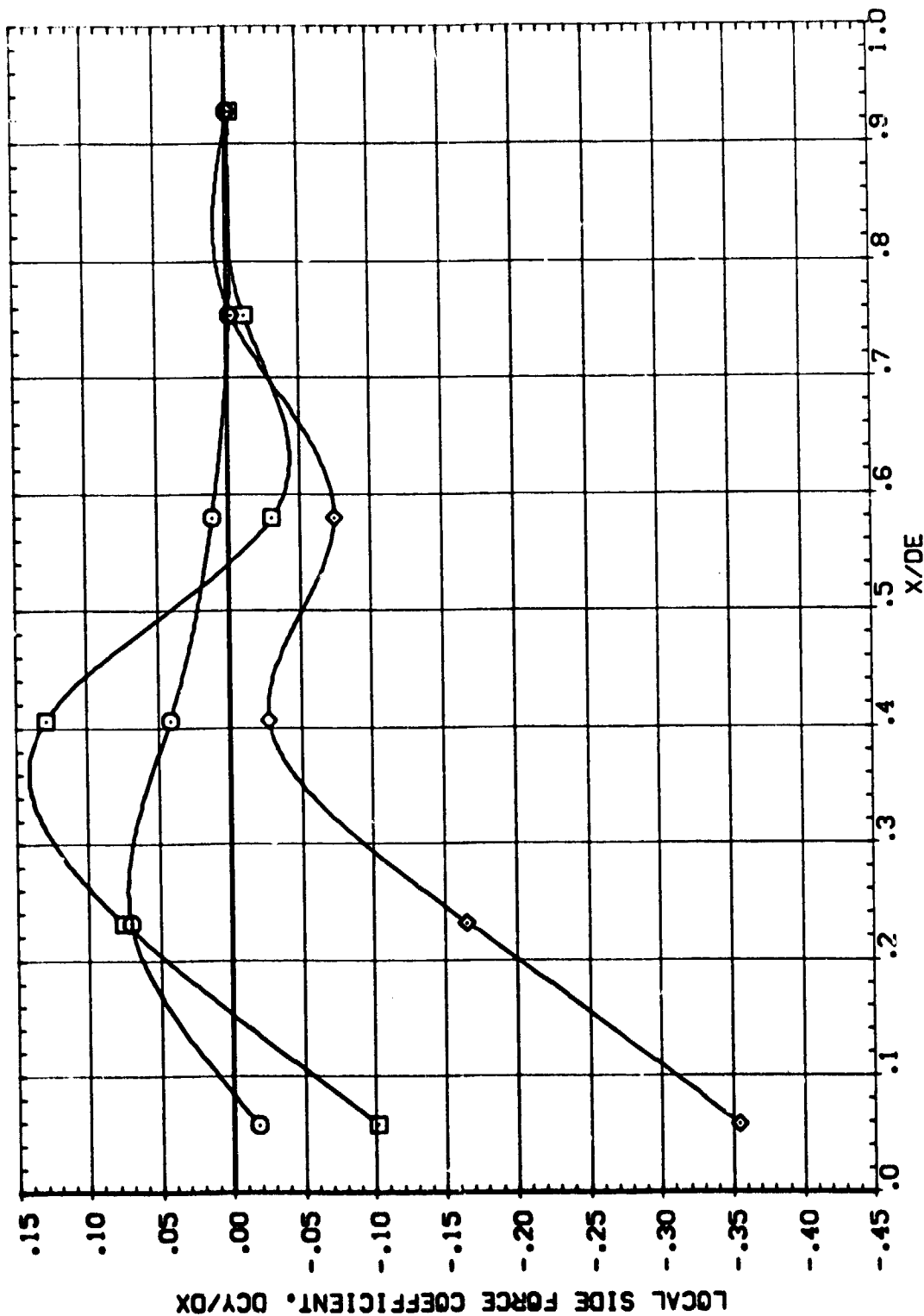
308



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CAL T14-053 IA36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA06)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-6.000	.000	POWER	STEF 49.4000
□	.000	.000	GY1	LREF 90.7000
◇	6.000	.000	GY2	BRZF 90.7000
			GY3	XTRP 158.0000
				YTRP .0000
				ZTRP .0000
				SCALE .0190



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

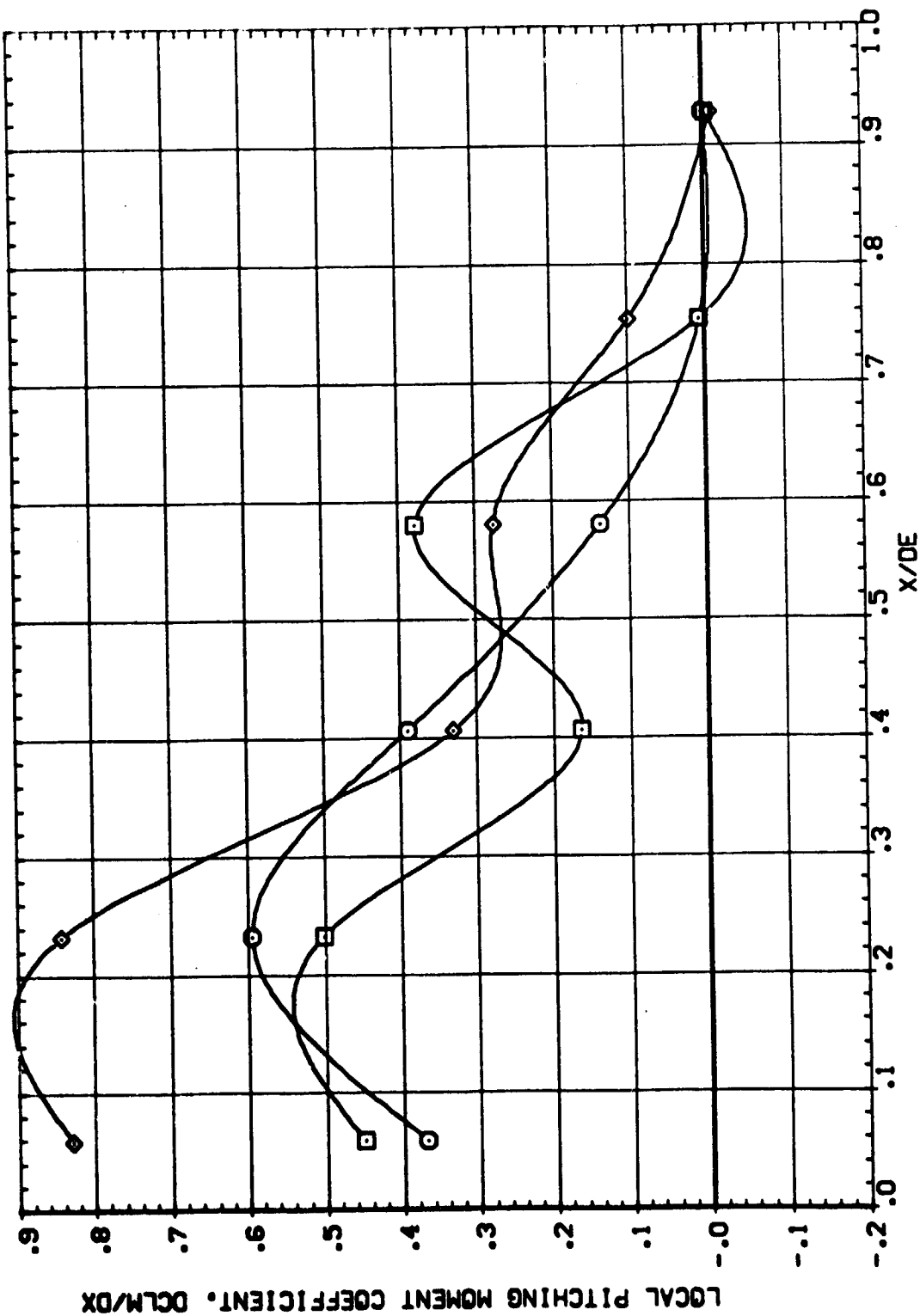
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310



CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA06)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES			REFERENCE INFORMATION			
○	-6.000		.000	POWER	.000	SREF	49.4000	50.4000	50.4000
□	.000	GP1	11.000	GY1	-9.000	LREF	50.7000	50.7000	50.7000
	6.000	GP2	.000	GY2	-9.000	BREF	50.7000	50.7000	50.7000
		GP3	.000	GY3	.000	XREF	150.0000	150.0000	150.0000
						YREF	.0000	.0000	.0000
						ZREF	.0000	.0000	.0000
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PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(AJMACH = 1.20

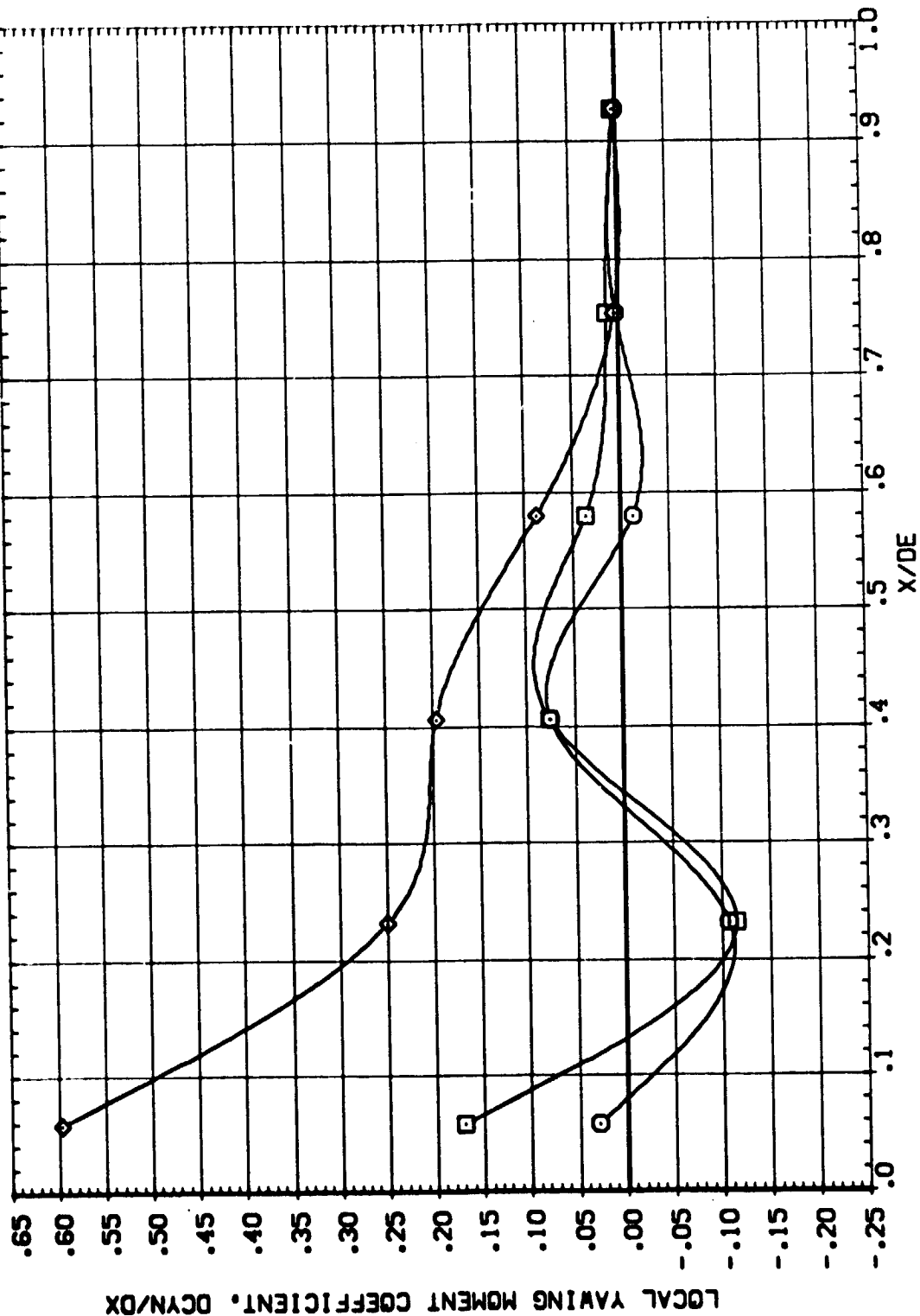
PAGE

311



CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF006)

SYMBOL	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION		
		ALPHA	POWER	POW	SREF	49.4000	50.4000
○	-6.000	.000	.000	.000	LREF	50.7000	50.7000
□	.000	11.000	-9.000	-9.000	BREF	50.7000	50.7000
◇	6.000	.000	-9.000	-9.000	XRRP	158.0000	158.0000
		GP2	GY2	GY3	YRRP	.0000	.0000
		GP3	GY3		ZRRP	.0000	.0000
					SCALE	.0150	SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

CAJ MACH = 1.20

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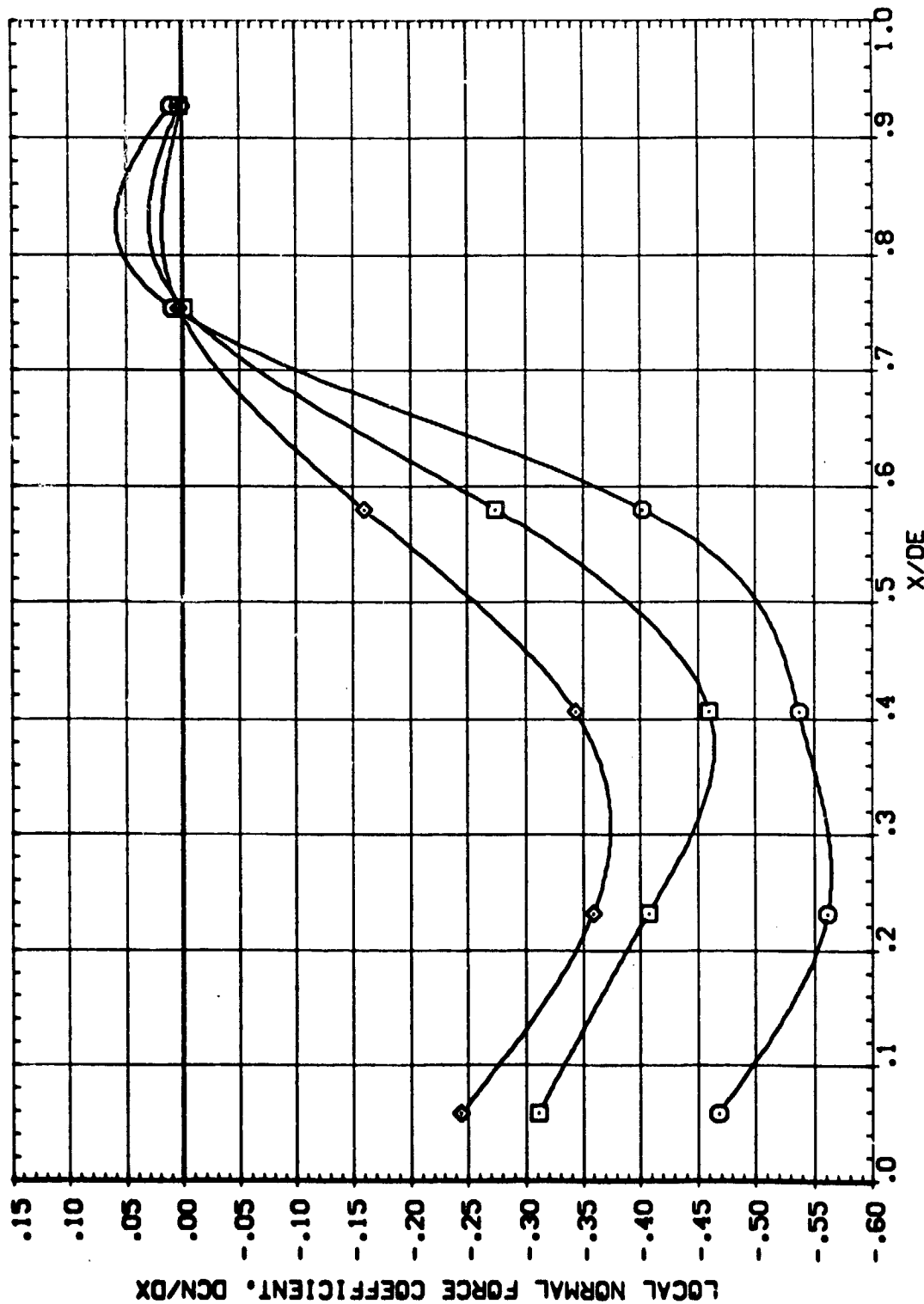
312





CAL T14-053 IA36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA07)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-8.000	OPR	.000 POWER 1.000	SREF 49.4000 50.4000
□	.000	GP1	28.310 SRPR 2.020	LREF 50.7000 50.7000
◇	8.000	GP2	11.000 GY1 -9.000	BREF 50.7000 50.7000
		GP3	.000 GY2 -9.000	YREF 158.0000 158.0000
			.000 GY3 -9.000	ZREF .0000 .0000
				SCALE .0150



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

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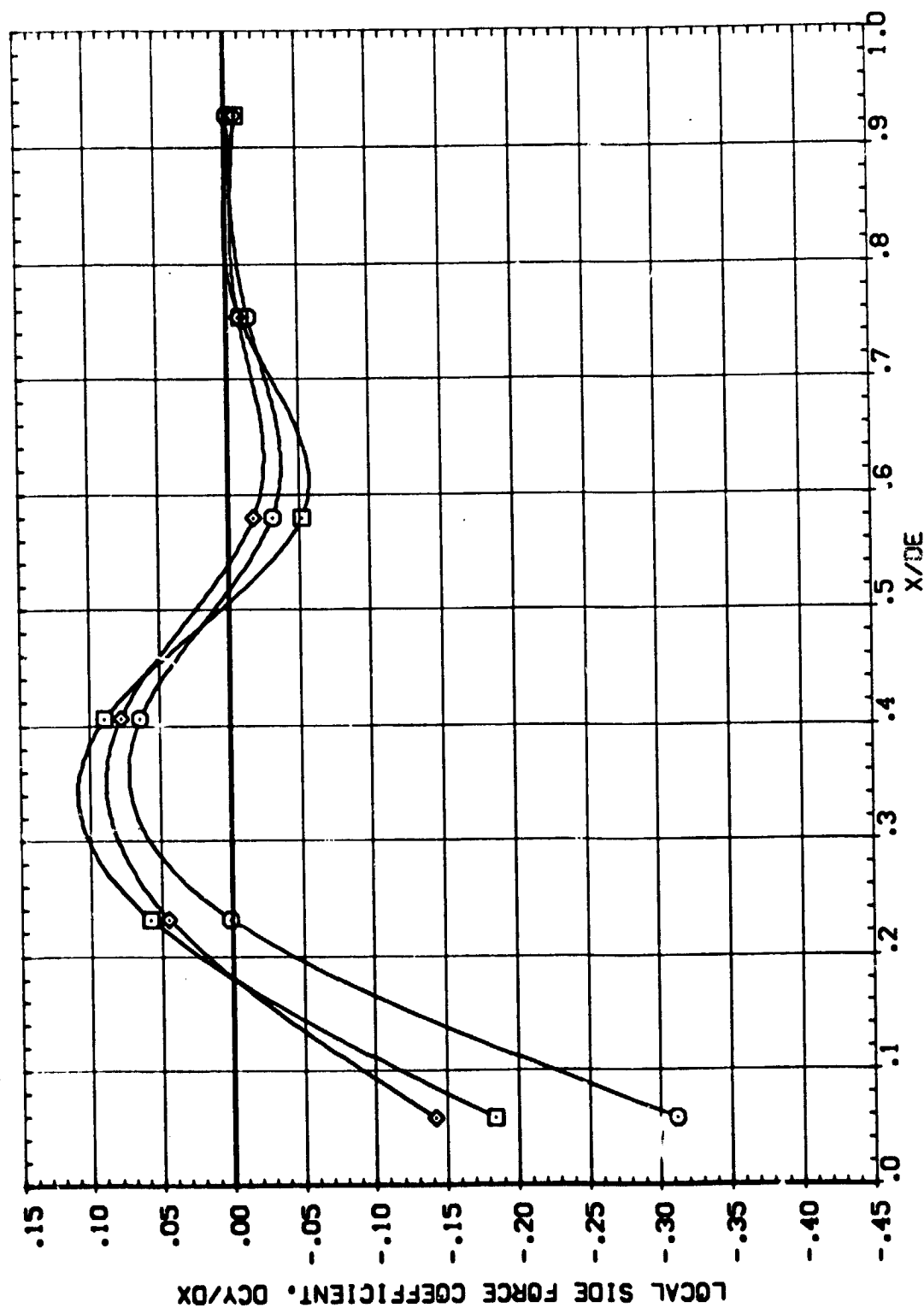
313

CAL T14-053 IA36 G2 + T1 + S1 UPPER MPS NOZZLE (AUFA07)

SYMBOL	ALPHA	BETA	PARAMETRIC VA. F'S	POWER	1.000
□	-8.000	GP1	28.310	SRPR	2.020
◇	6.000	GP2	11.000	GY1	-9.000
		GP3	.000	GY2	-9.000
			.000	GY3	-9.000

SREF	49.4000	50. FT.
LREF	90.7000	INCHES
BREF	90.7000	INCHES
XPRP	158.0000	INCHES
YPRP	.0000	INCHES
ZPRP	.0000	INCHES
SCALE	.0190	SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

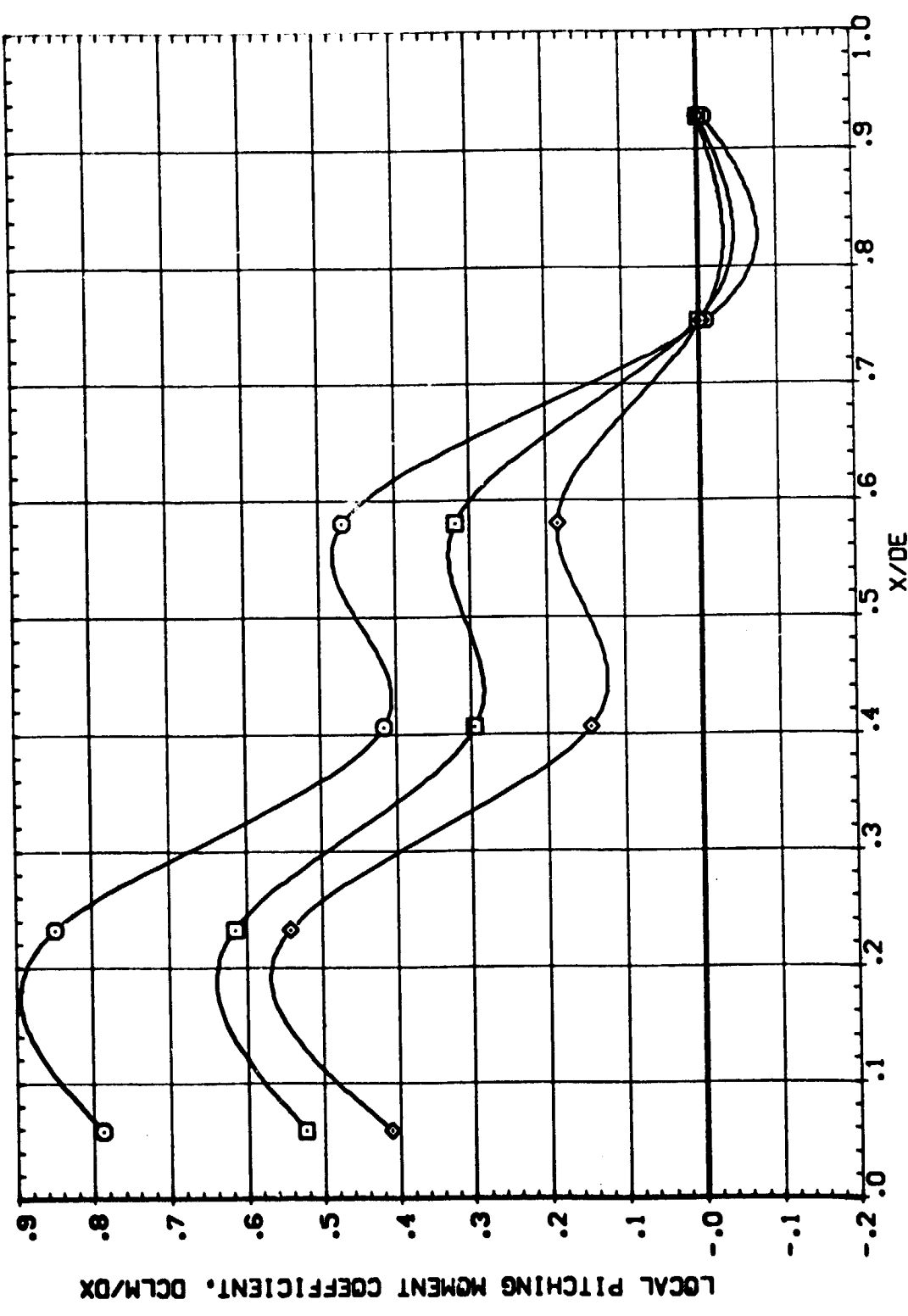
PAGE

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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUFA07)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION				
	ALPHA	BETA	POWER	SREF	49.4000	50.4000	50.4000	50.4000
○	-8.000	.000	1.000	UREF	90.7000	90.7000	90.7000	90.7000
□	.000	28.310	2.000	UREF	90.7000	90.7000	90.7000	90.7000
◇	6.000	11.000	-9.000	YREF	136.0000	136.0000	136.0000	136.0000
		GP1	GV1	YREF	.0000	.0000	.0000	.0000
		GP2	GV2	ZREF	.0000	.0000	.0000	.0000
		GP3	GV3	SCALE	.0150	.0150	.0150	.0150



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

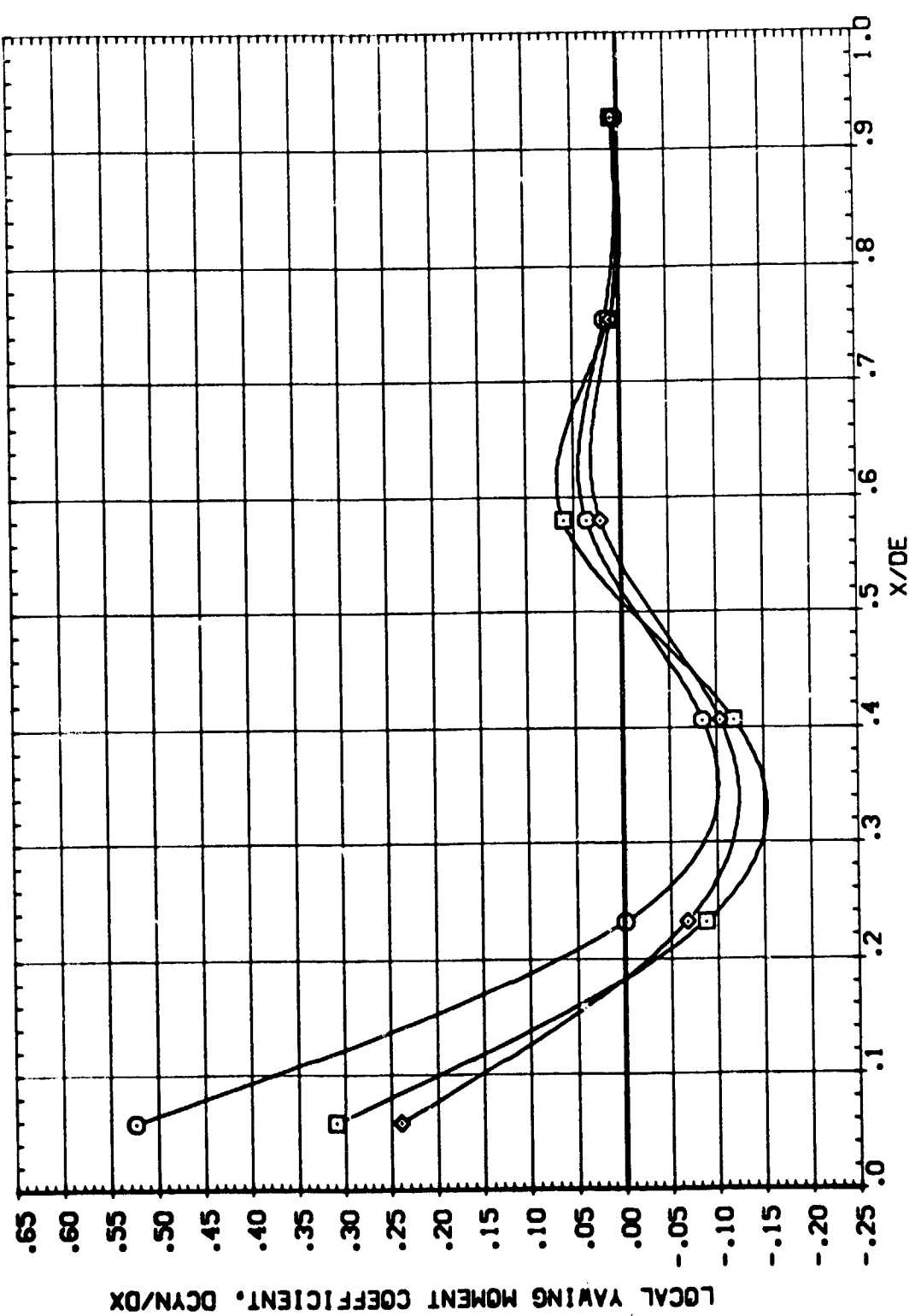
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315

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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF007)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-9.000	.000	POWER 1.000	SREF 49.4000 SQ.FT.
□	.000	28.310	SWPR 2.020	LREF 90.7000 INCHES
◇	6.000	11.000	GV1 -9.000	BREF 90.7000 INCHES
		.000	GV2 -9.000	XPRP .0000 INCHES
		.000	GV3 -9.000	YPRP .0000 INCHES
				ZPRP .0000 INCHES
				SCALE .0190



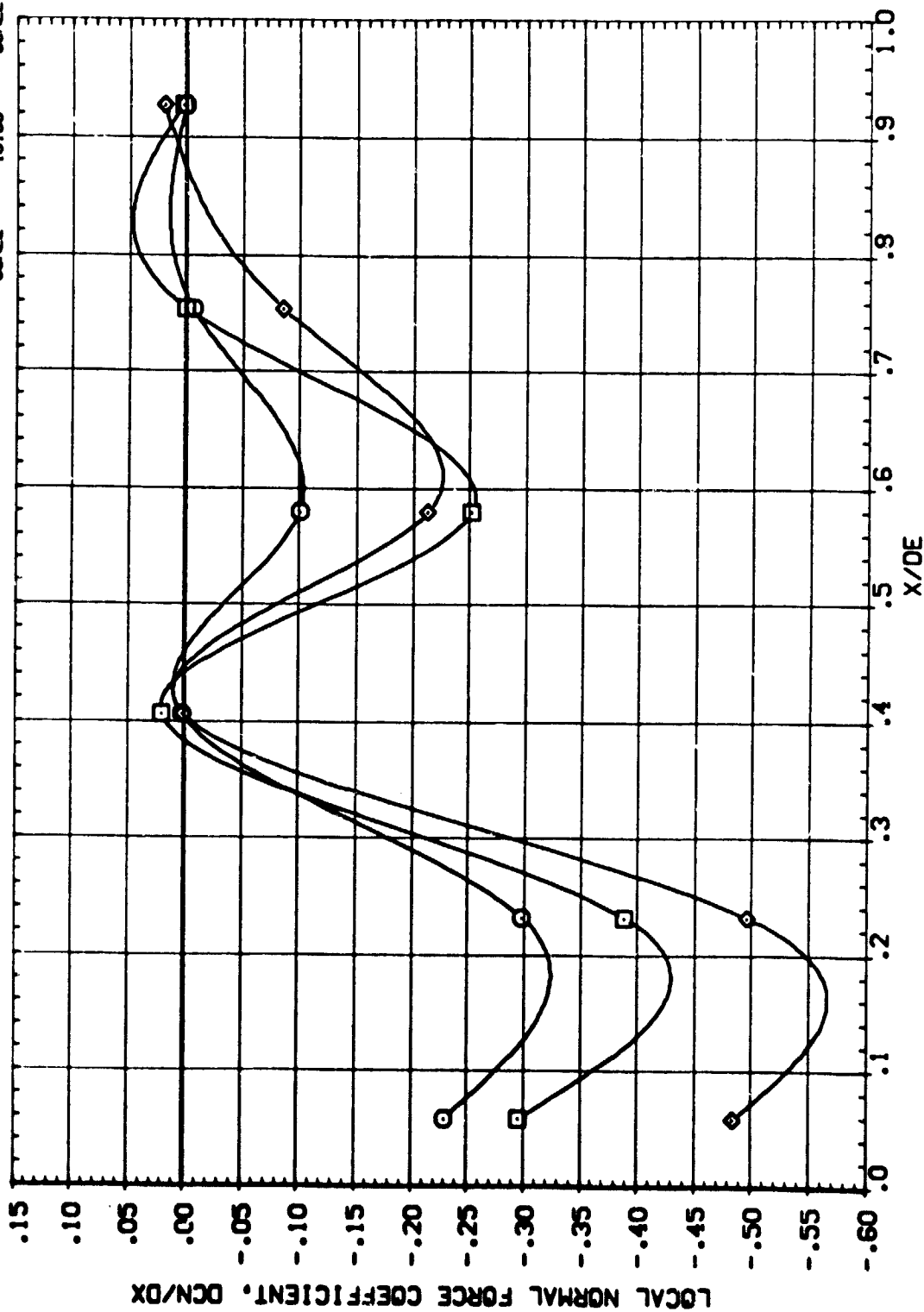
PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(AJMACH = 1.20)



CAL T14-053 1A36 02 + 71 + S1 UPPER MPS NOZZLE (AUF08)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	49.4000	50.4000	50.4000
○	-6.000	0.000	1.000	LREF	90.7000	90.7000	90.7000
□	.000	28.310	2.020	BREF	90.7000	90.7000	90.7000
◇	6.000	11.000	-9.000	XPRP	158.0000	158.0000	158.0000
		G2	G3	YPRP	.0000	.0000	.0000
				ZPRP	.0000	.0000	.0000
				SCALE	.0190	.0190	.0190



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.19

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317

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CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF08)

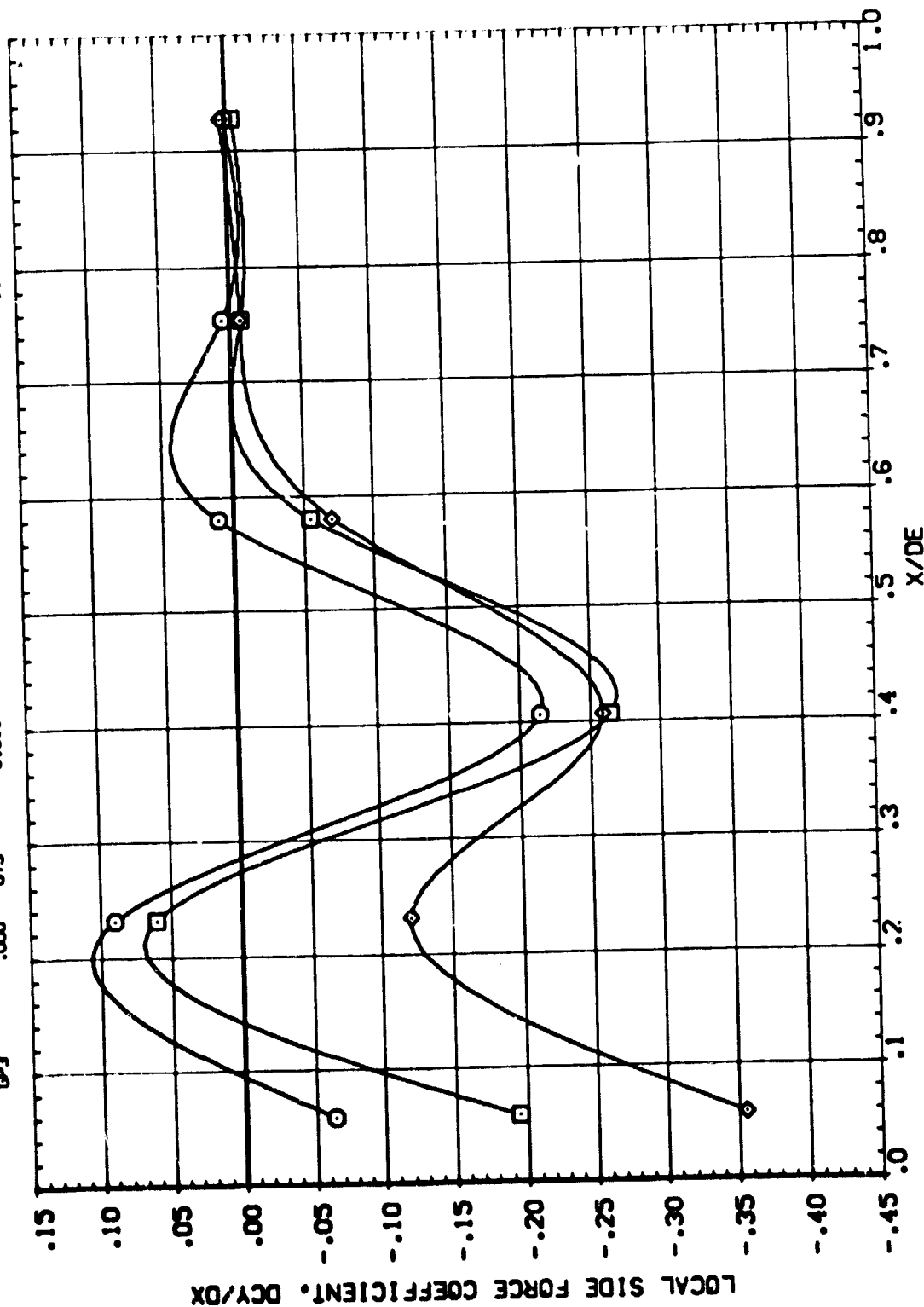
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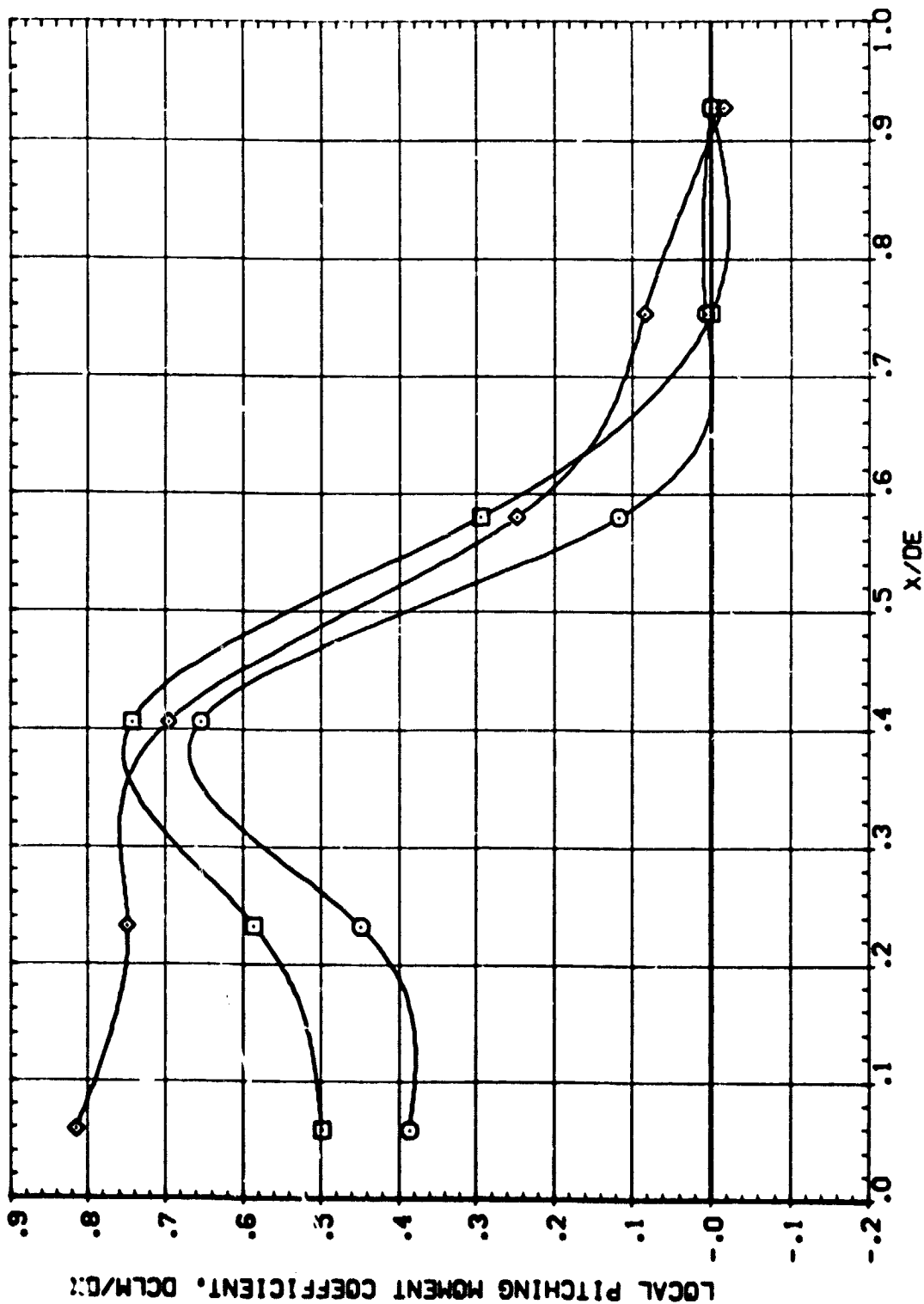
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PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS  
PAGE

CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF08)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	49.4000	50.17	SCALE
○	-6.000	.000	1.000	LREF	50.7000	INCHES	
□	.000	28.310	2.020	BREF	50.7000	INCHES	
◇	6.000	11.000	9.000	YMRP	158.0000	INCHES	
				ZMRP	.0000	INCHES	
				YMRP	.0000	INCHES	
				ZMRP	.0000	INCHES	
				SCALE	.0150		



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.19

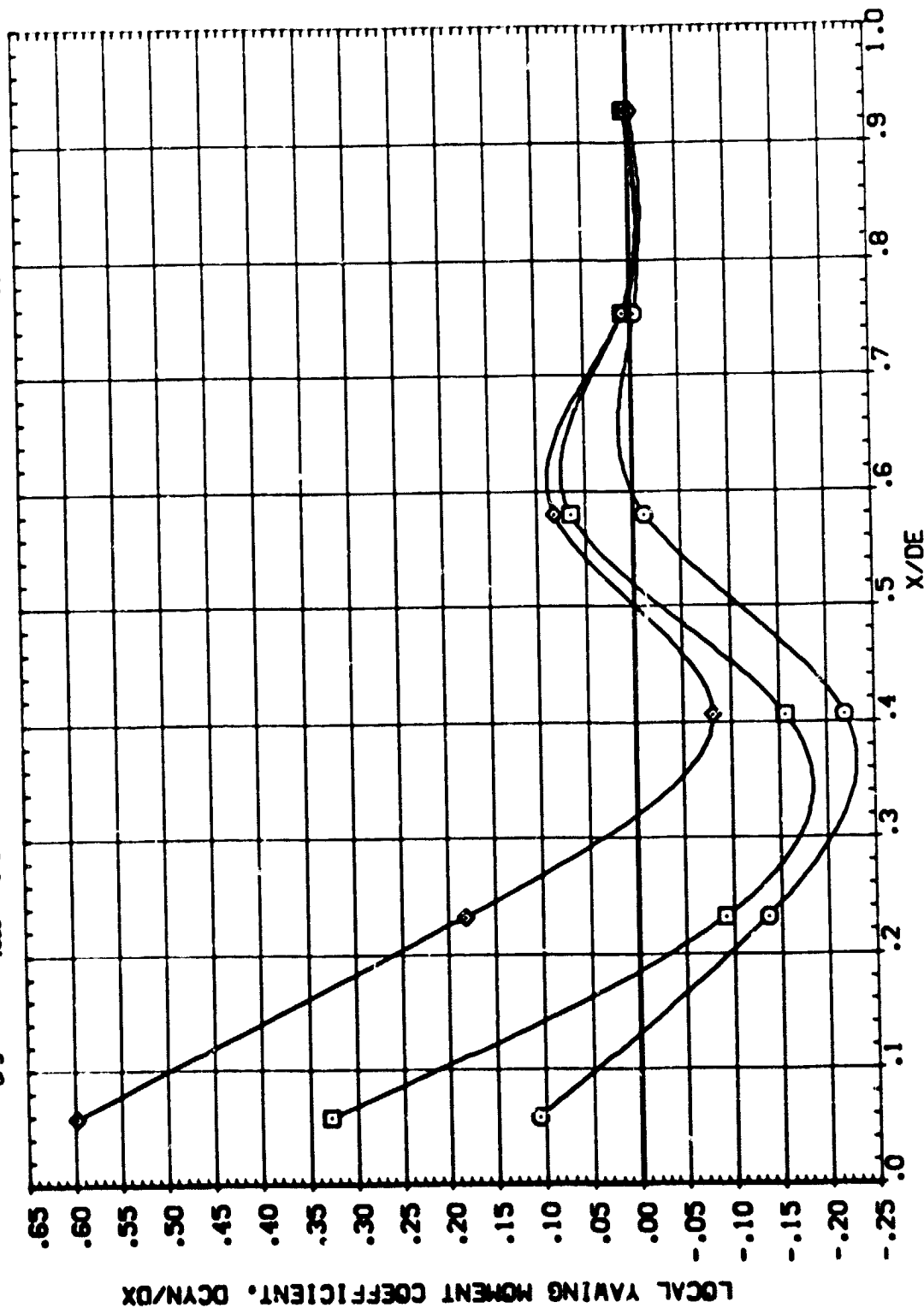
PAGE

219

CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE (AUF08)

SYMB. BETA ALPHA  
 -6.000 .000 POWER 1.000  
 .000 28.310 SWPR 2.020  
 6.000 11.000 GY1 -8.000  
 GP1 GP2 GP3 -9.000  
 GP2 GP3 -9.000

REFERENCE INFORMATION  
 SREF 49.4000 50.4000  
 LREF 90.7000 90.7000  
 BREF 90.7000 90.7000  
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 SCALE .0150 SCALE



PLUME EFFECT ON UPPER MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

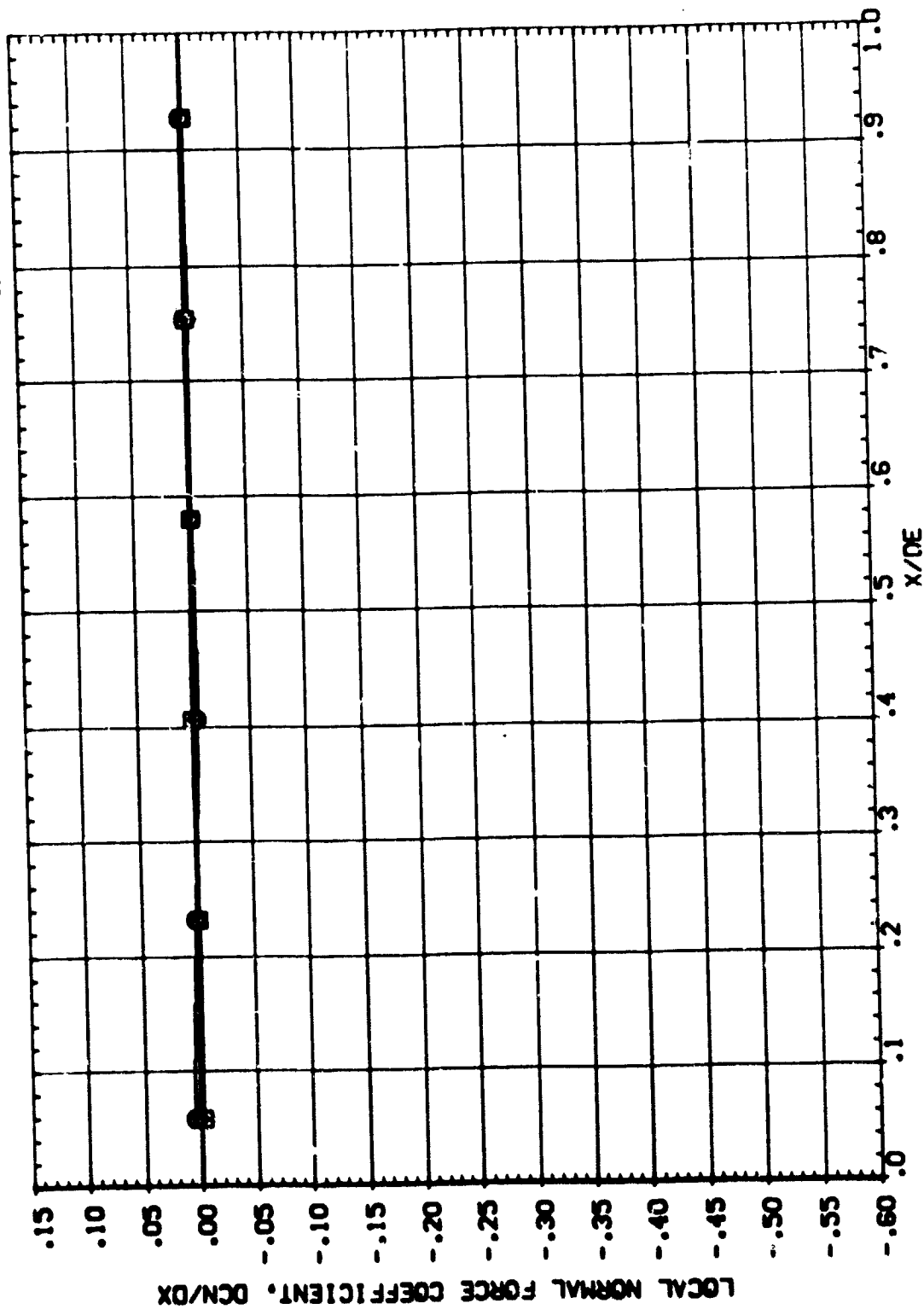
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POWER	.000
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ZREF	.0000
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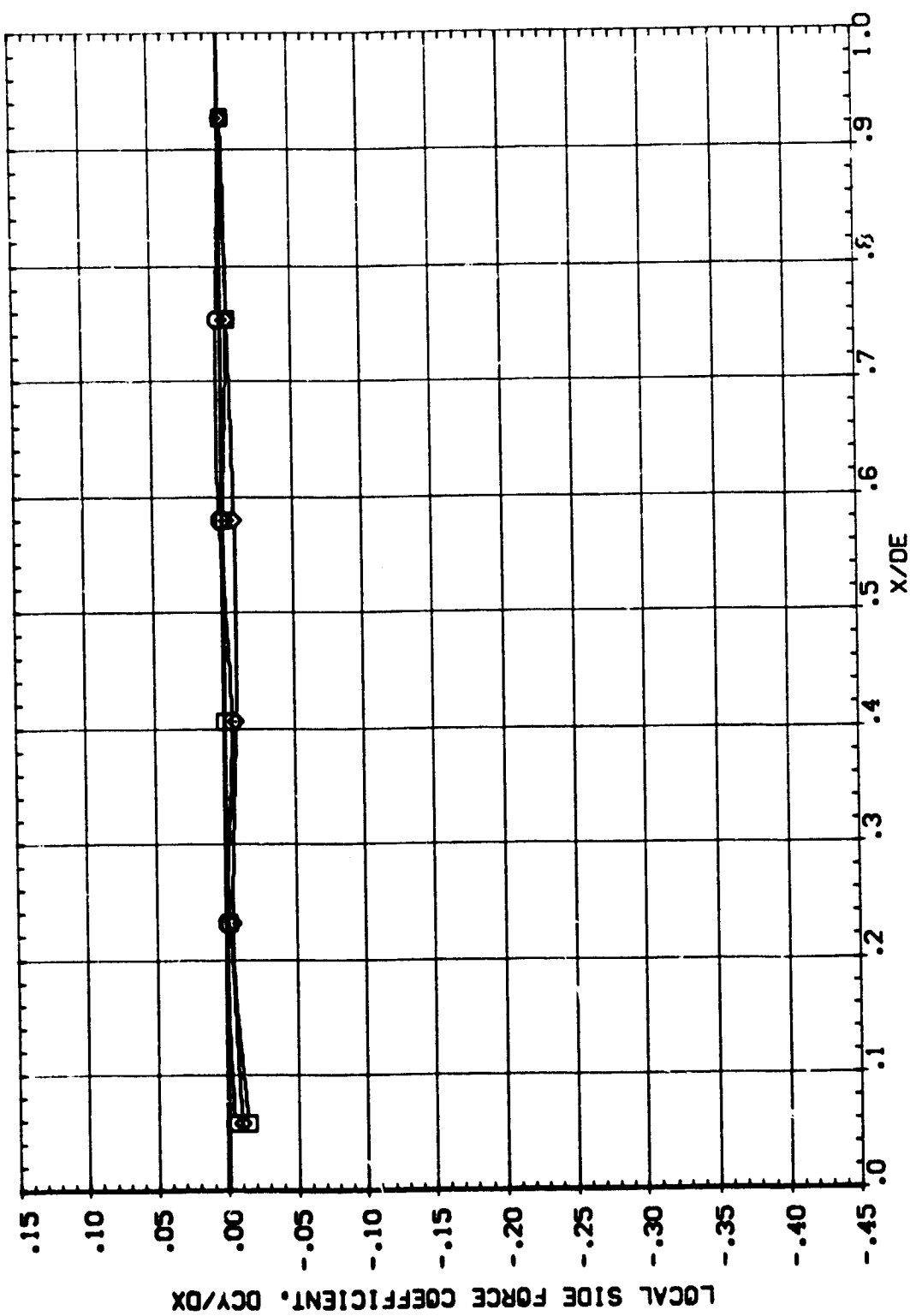


## DRIVING EFFECT ON LOWER 1/4 MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

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CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUFB01)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-9.000	.000	POWER	SREF 49.4000
□	.000	11.000	GY1	UREF 90.7000
◇	6.000	.000	GY2	BREF 90.7000
		.000	GY3	YMRP 158.0000
		.000		ZMRP .0000
		.000		SCALE .0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

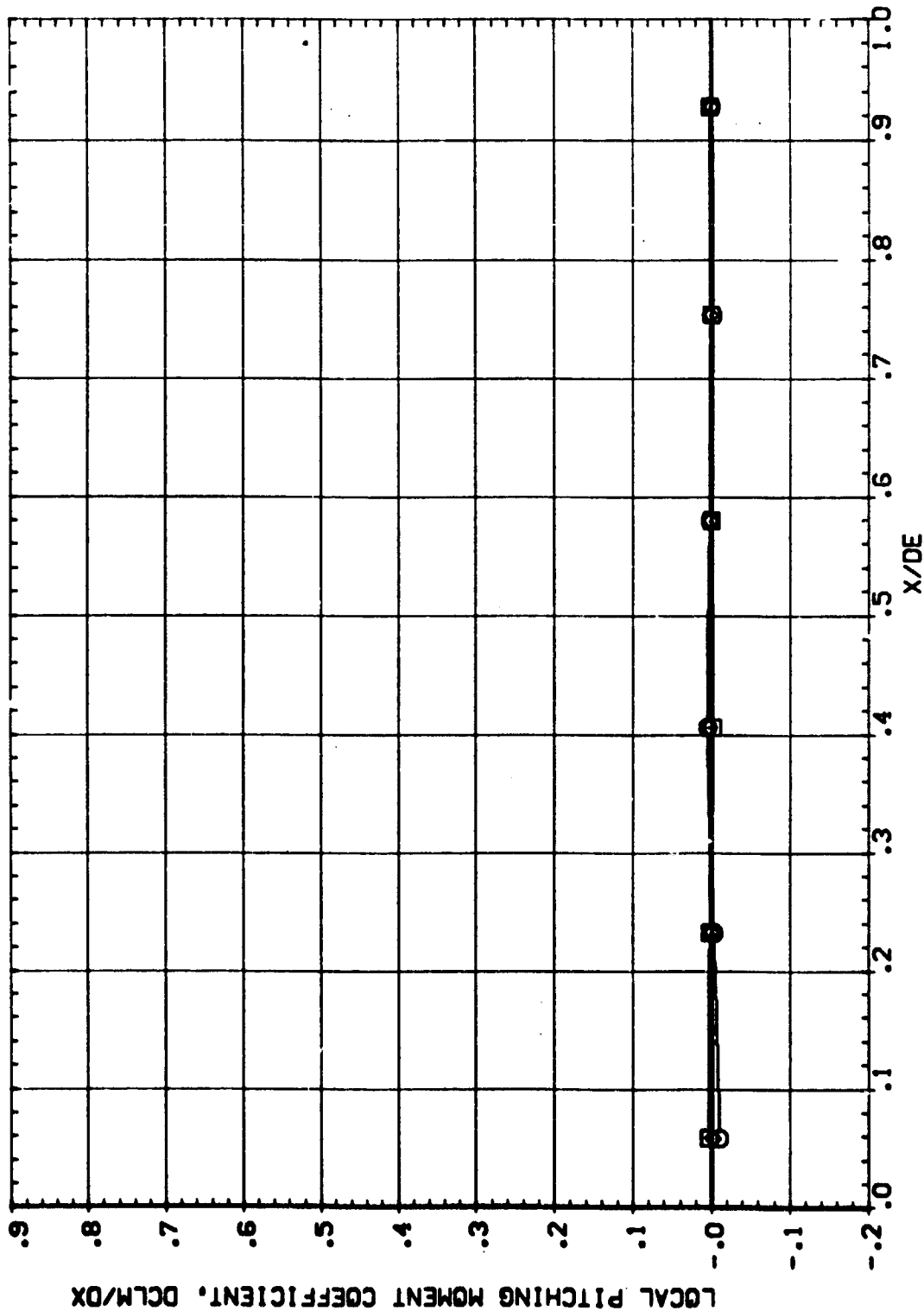
(A)MACH = .90

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CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF801)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	ALPHA	BETA	POWER	SREF	49.4000	50.4000	50.4000
□	-8.000	.000	.000	LREF	50.7000	50.7000	50.7000
◇	.000	11.000	GY1	BREF	50.7000	50.7000	50.7000
	6.000	.000	GY2	XREF	156.0000	156.0000	156.0000
		.000	GY3	YREF	.0000	.0000	.0000
		.000		ZREF	.0000	.0000	.0000
				SCALE	.0190	.0190	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

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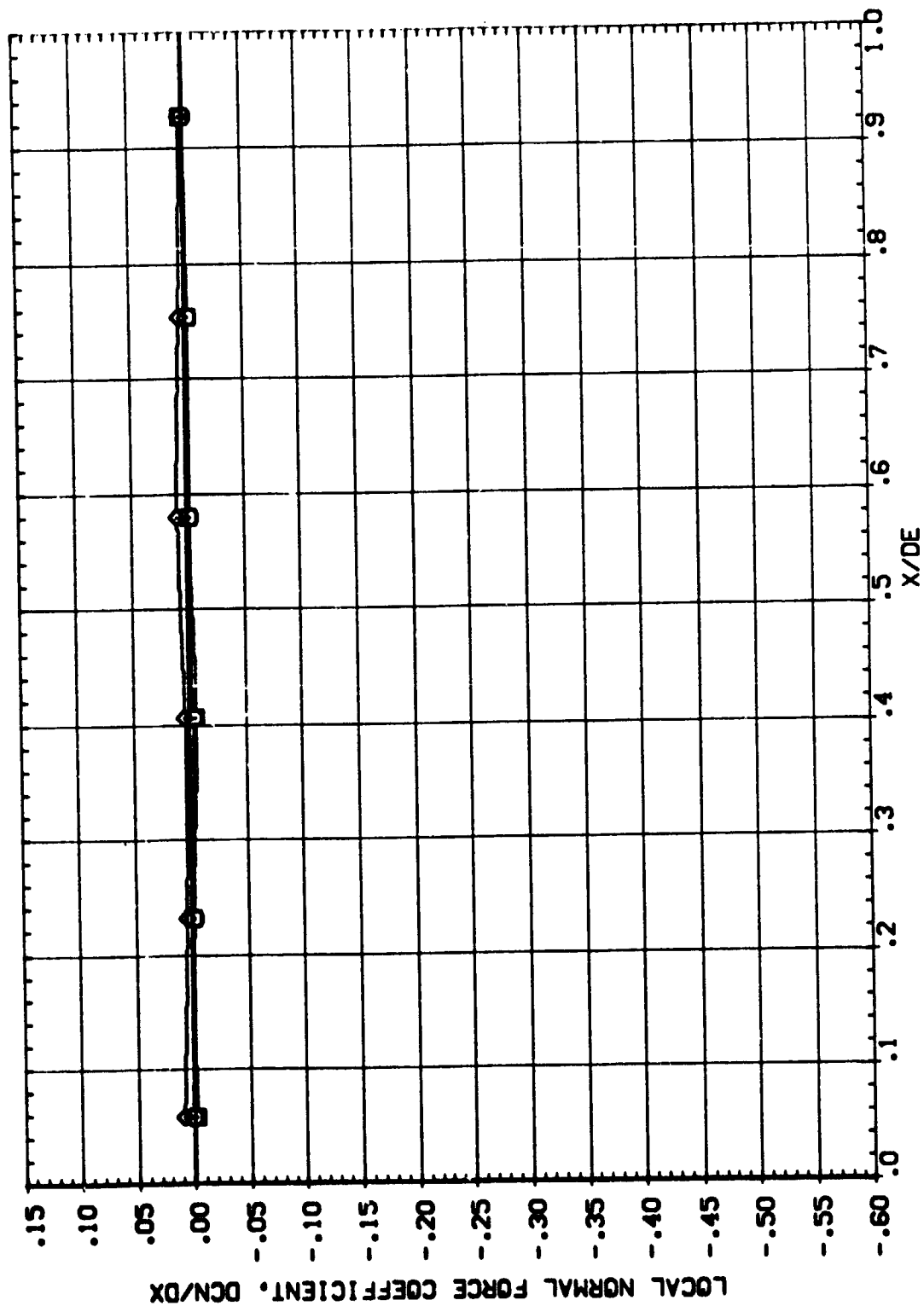
323





CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF802)

SYMBOL		BETA		ALPHA		PARAMETRIC VALUES			REFERENCE INFORMATION			
□	◇	-6.000	.000	.000	.000	11.000	POWER	.000	SREF	49.4000	50.4000	50.4000
									LREF	50.7000	50.7000	50.7000
									BREF	50.7000	50.7000	50.7000
□	◇	6.000	.000	.000	.000	.000	GY1	-9.000	XREF	158.0000	158.0000	158.0000
									YREF	.0000	.0000	.0000
									ZREF	.0000	.0000	.0000
								SCALE		.0150		



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

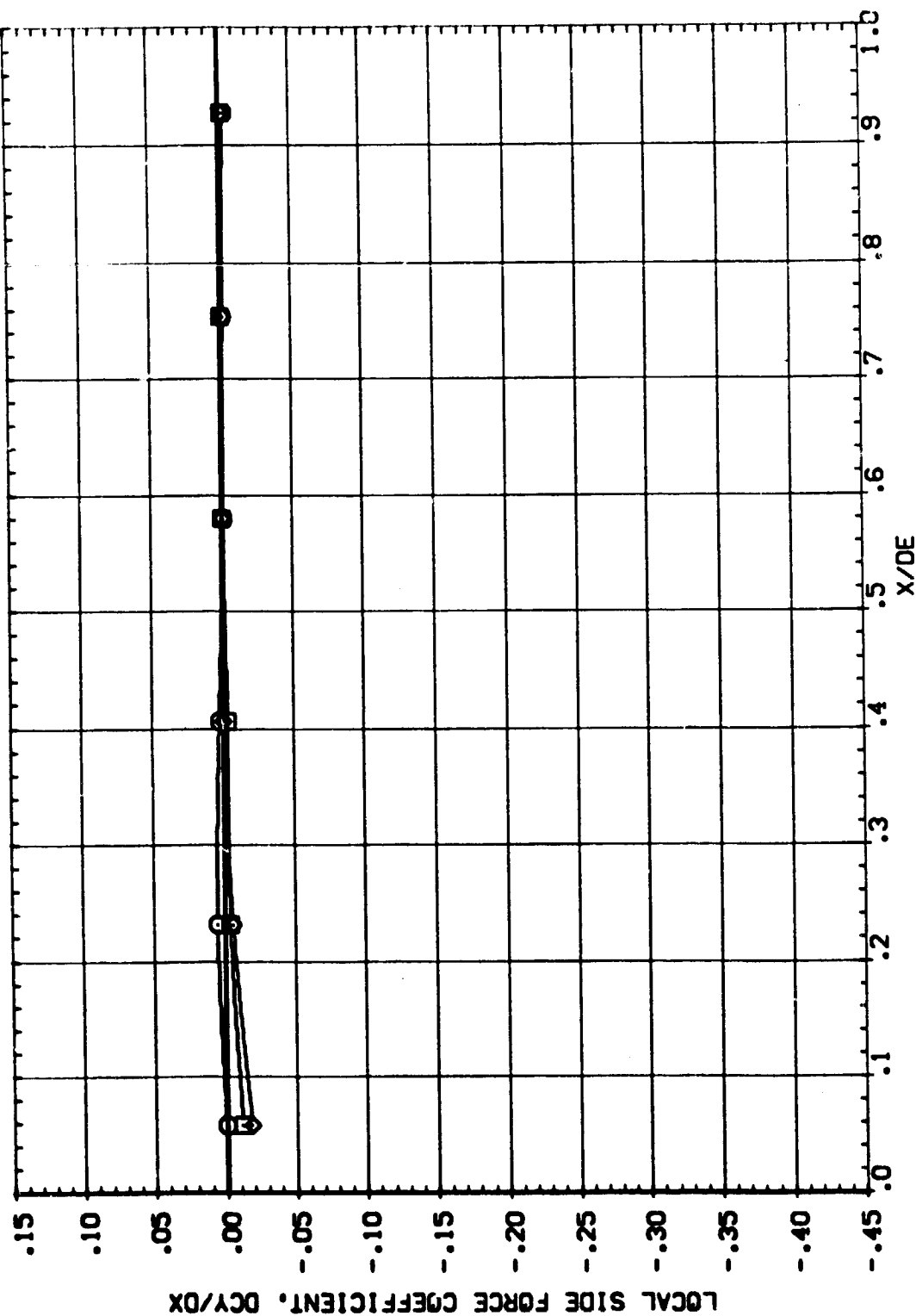
(A)MACH = .90

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CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF802)

SYMBOL	BETA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	GP1	GP2	GP3	POWER	GY1	SREF	LREF	BREF
□	-6.000	.000	.000	.000	.000	-9.000	49.4000	50.7000	158.0000
◇	6.000	.000	.000	.000	.000	-9.000	50.7000	50.7000	.0000
							YREF	ZREF	SCALE
							.0000	.0000	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

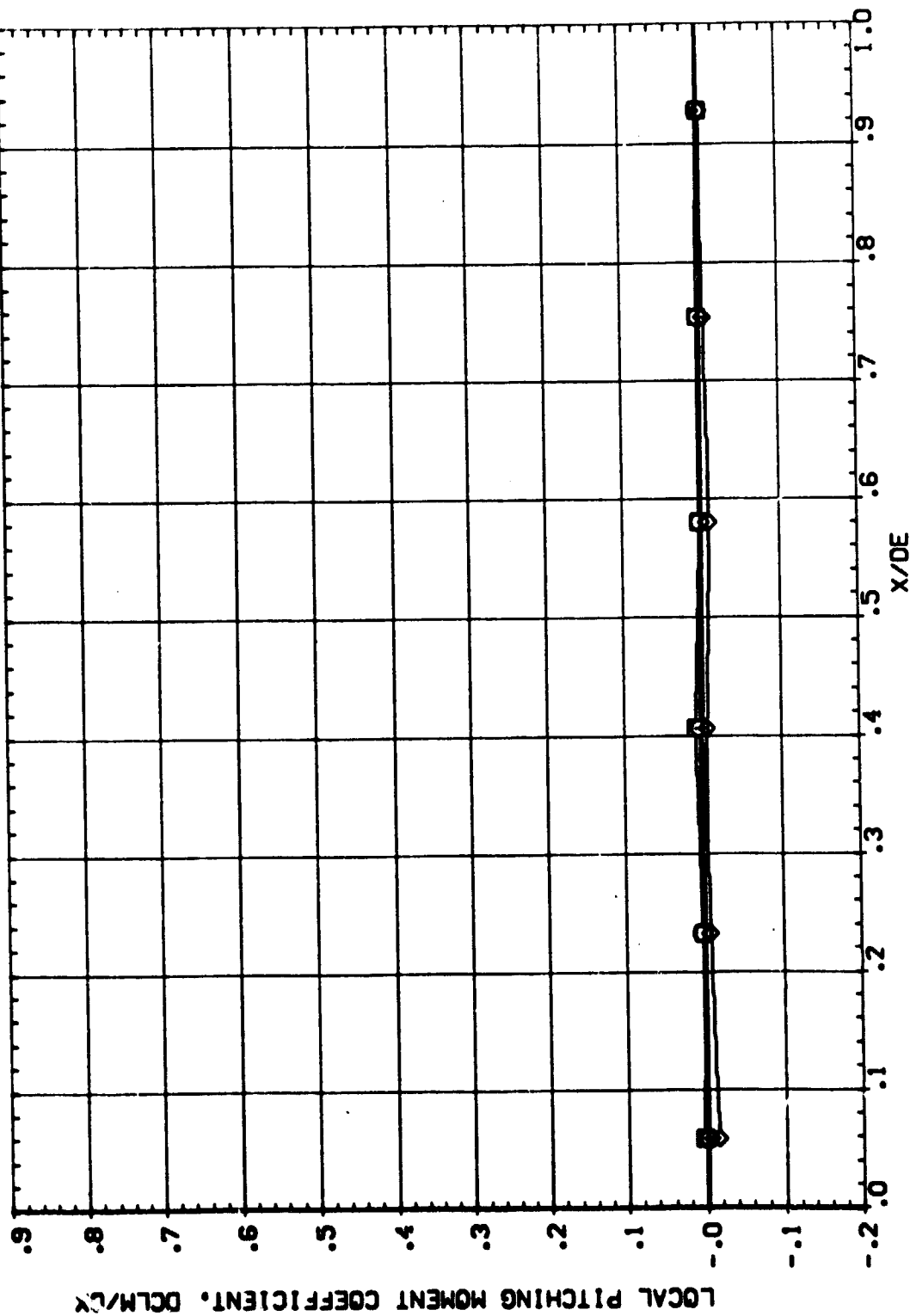
PAGE

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CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF802)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	49.4000	50.4000	50.4000
□	-6.000	.000	.000	LREF	50.7000	50.7000	50.7000
◇	.000	11.000	-9.000	BREF	50.7000	50.7000	50.7000
	6.000	.000	-9.000	XREF	158.0000	158.0000	158.0000
		.000	.000	YREF	.0000	.0000	.0000
		.000	.000	ZREF	.0000	.0000	.0000
				SCALE	.0190		



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

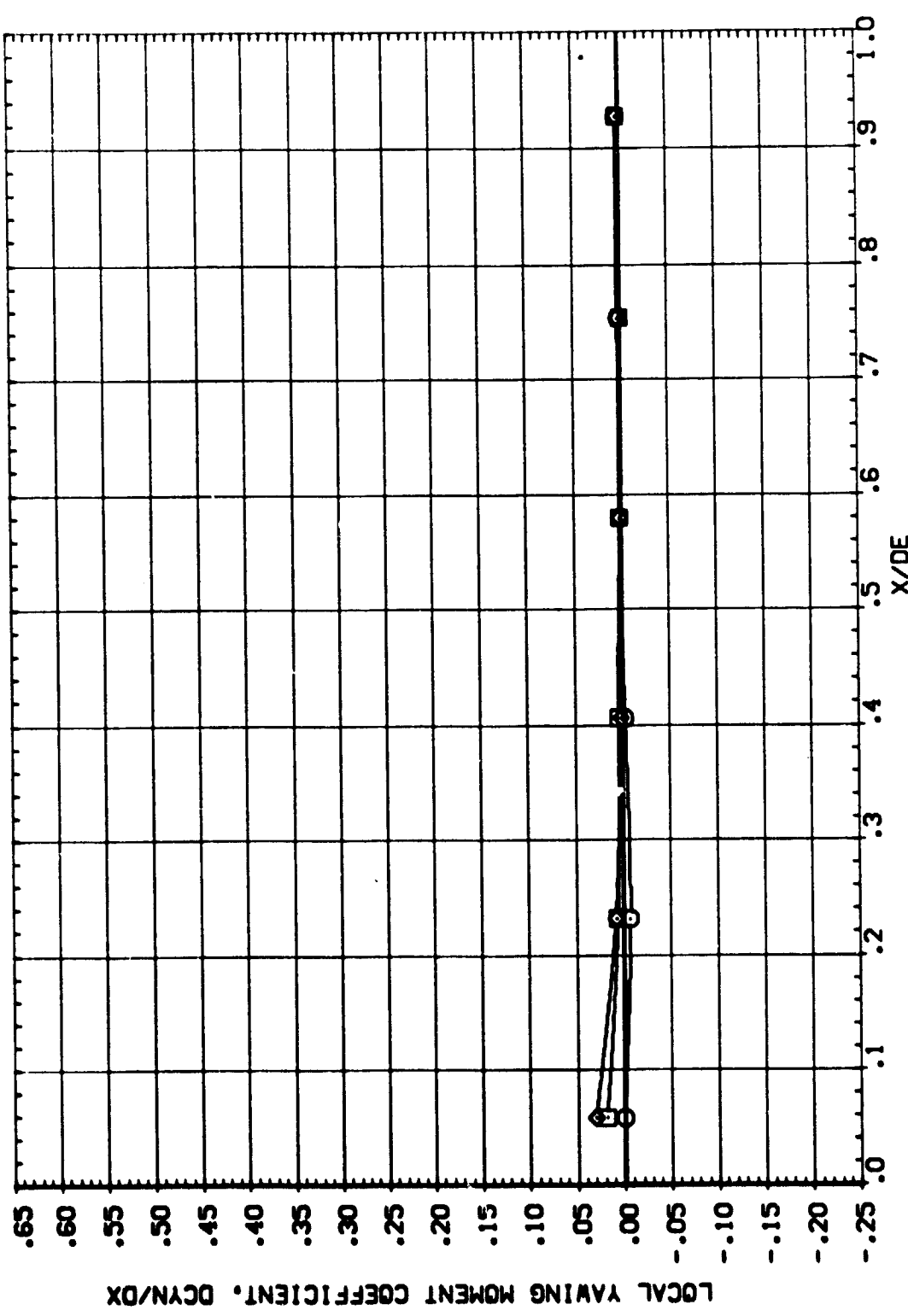
PAGE

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CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ.(AUFB02)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES			REFERENCE INFORMATION			
□	-6.000	GP1	.000	POWER	.000	SREF	49.4000	50. FT.	
◇	6.000	GP2	11.000	GY1	-9.000	LREF	90.7000	INCHES	
		GP3	.000	GY2	-9.000	BREF	90.7000	INCHES	
			.000	GY3	.000	XMRP	158.0000	INCHES	
						YMRP	.0000	INCHES	
						ZMRP	.0000	INCHES	
						SCALE	.0190	SCALE	



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

PAGE

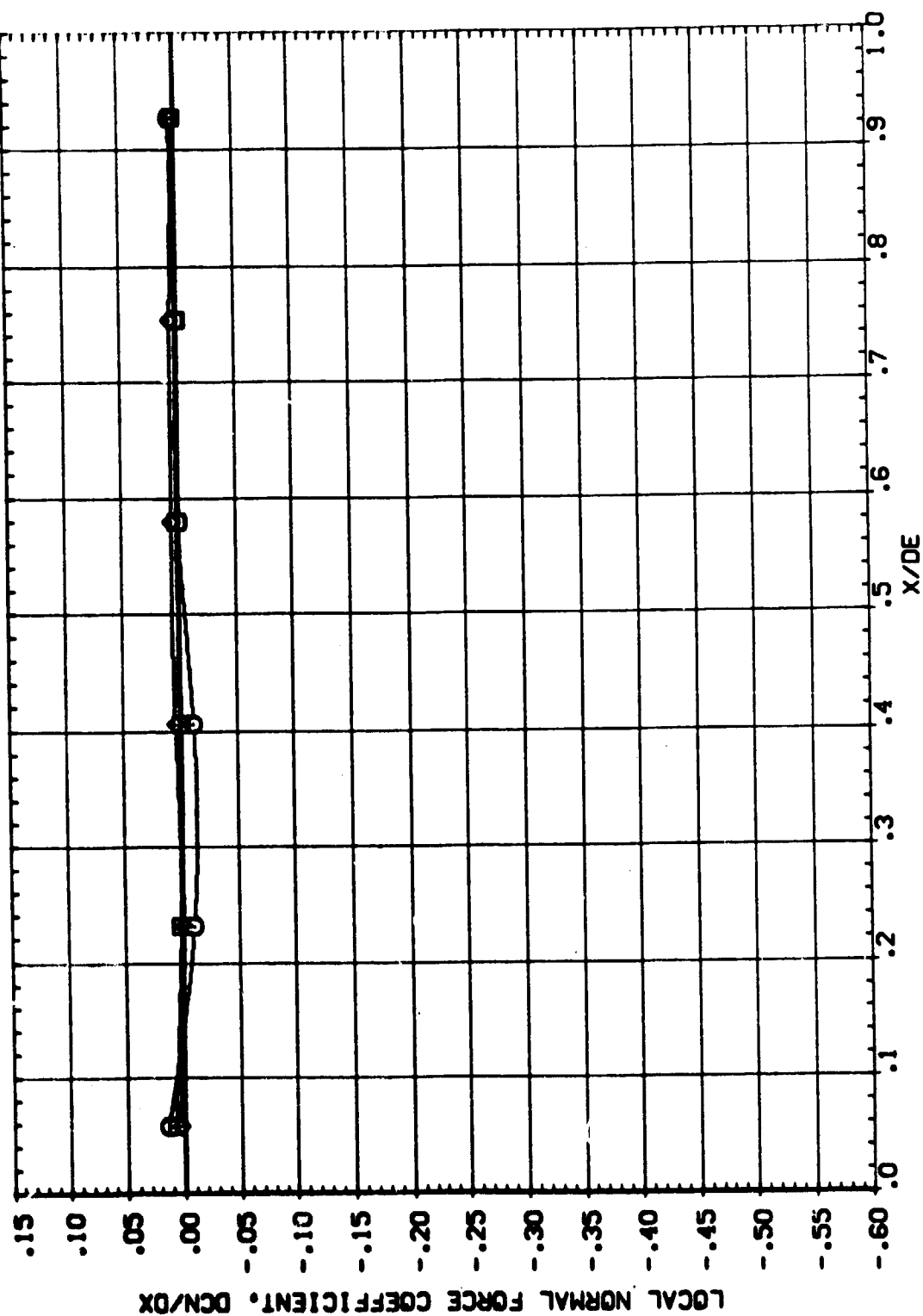
328





CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF803)

PARAMETRIC VALUES		REFERENCE INFORMATION	
ALPHA	BETA	SREF	49.4000
0.000	0.000	LINE	90.7000
0.000	0.000	BREF	90.7000
0.000	0.000	YREF	158.0000
0.000	0.000	YREF	0.0000
0.000	0.000	ZREF	0.0000
0.000	0.000	SCALE	.0150
0.000	0.000	SCALE	90.70



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

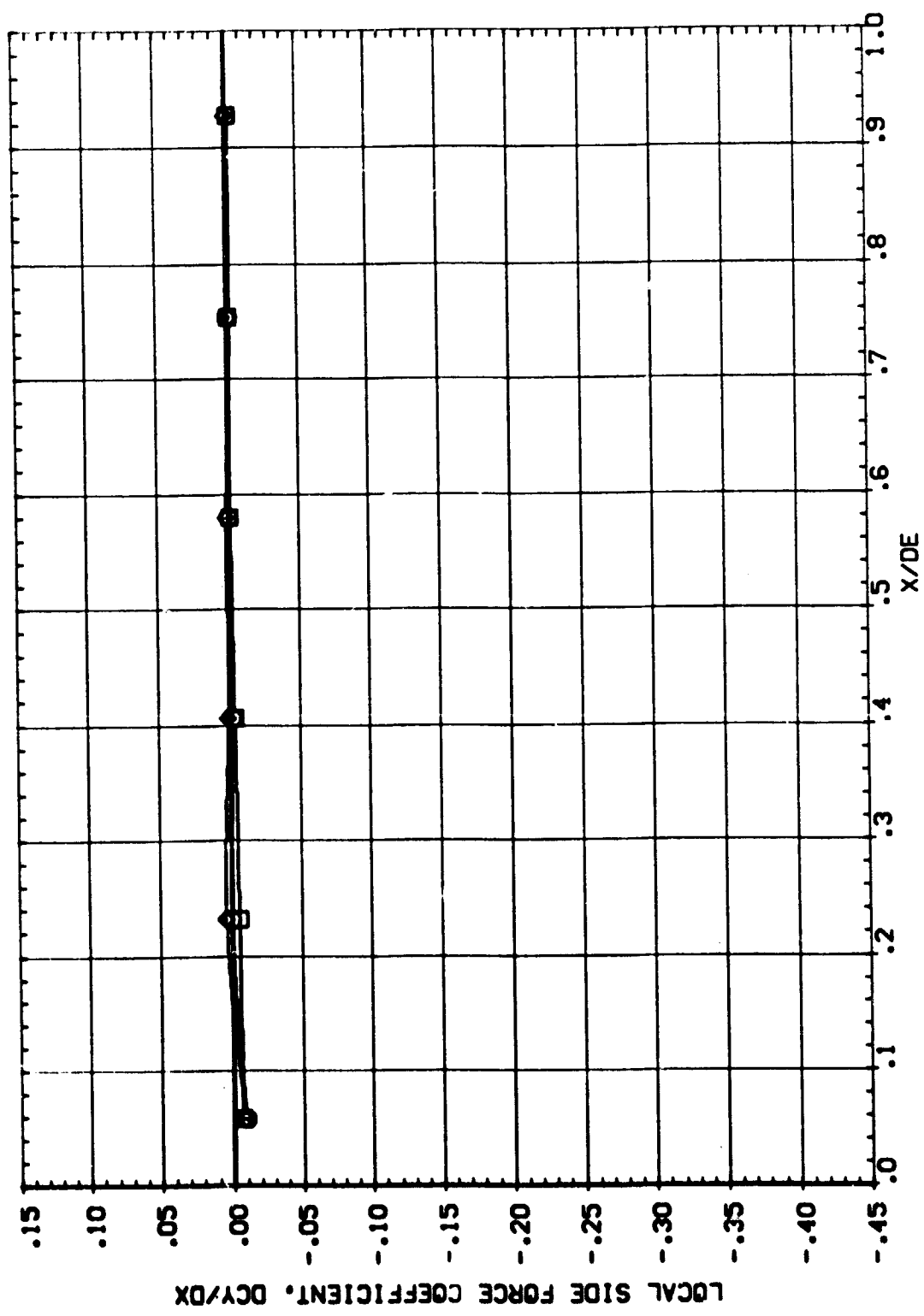
(A) MACH = .90

PAGE

329

CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ.(AUF803)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	49.4000	50.47
□	-8.000			LREF	90.7000	INCHES
◇	.000	GP1	GP2	BREF	90.7000	INCHES
	6.000	GP3	GY1	XPRP	158.0000	INCHES
			GY2	YPRP	.0000	INCHES
			GY3	ZPRP	.0000	INCHES
				SCALE	.0150	SCALE



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

PAGE

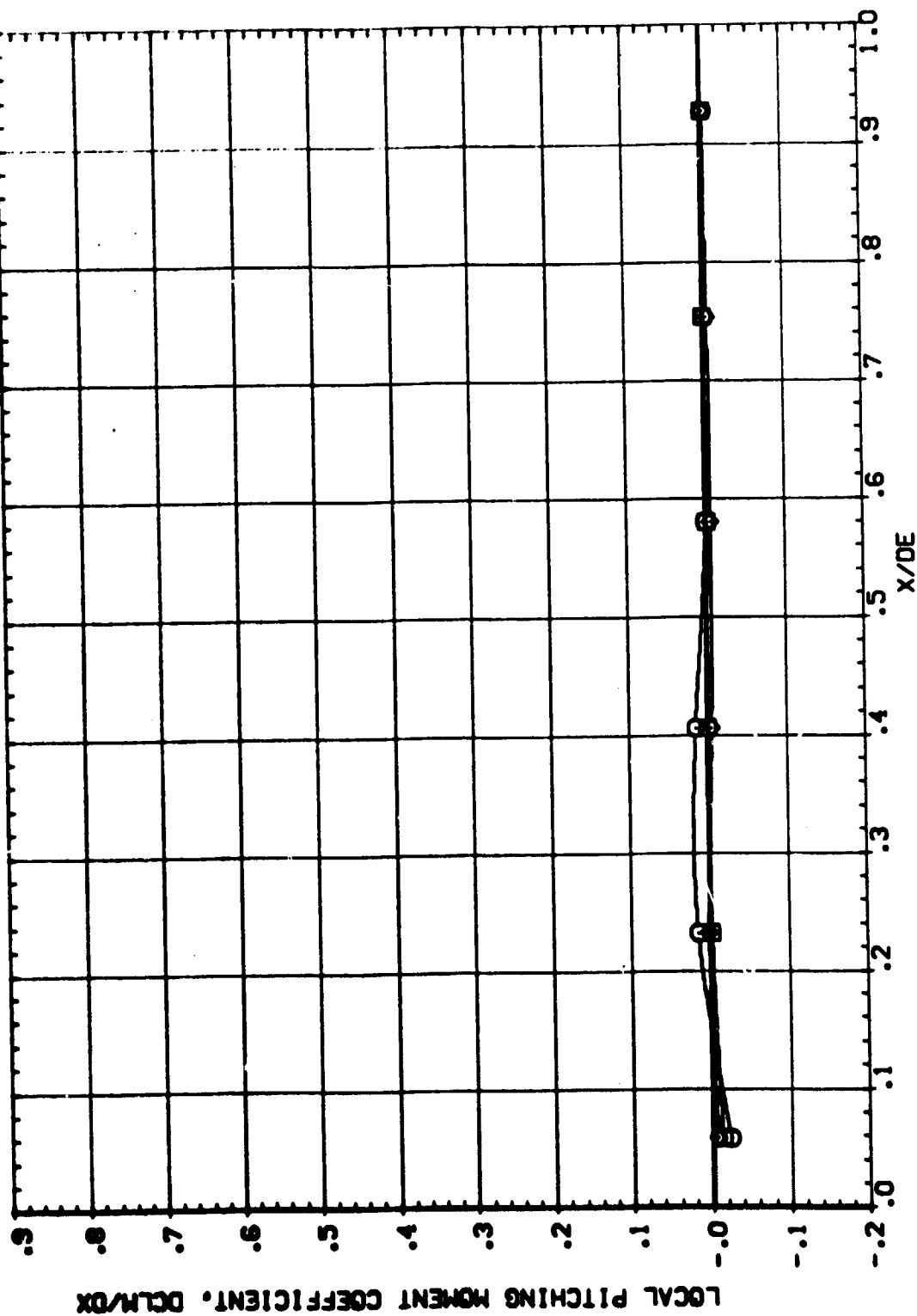
330

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF803)

REF. 49.4000 90.4000 90.4000  
 LIFT 50.7000 50.7000 50.7000  
 DRIFT 150.0000 150.0000 150.0000  
 YARP .0000 .0000 .0000  
 ZARP .0000 .0000 .0000  
 SCALE .0150 .0150 .0150

PARAMETRIC VALUES  
 ALPHA -8.0000 BETA 1.0000  
 CPR 26.2000 SPWR 2.3000  
 GP1 11.0000 GY1 -8.0000  
 GP2 .0000 GY2 -8.0000  
 GP3 .0000 GY3 -8.0000

SPR. 0 0 0



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

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331

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUFB03)

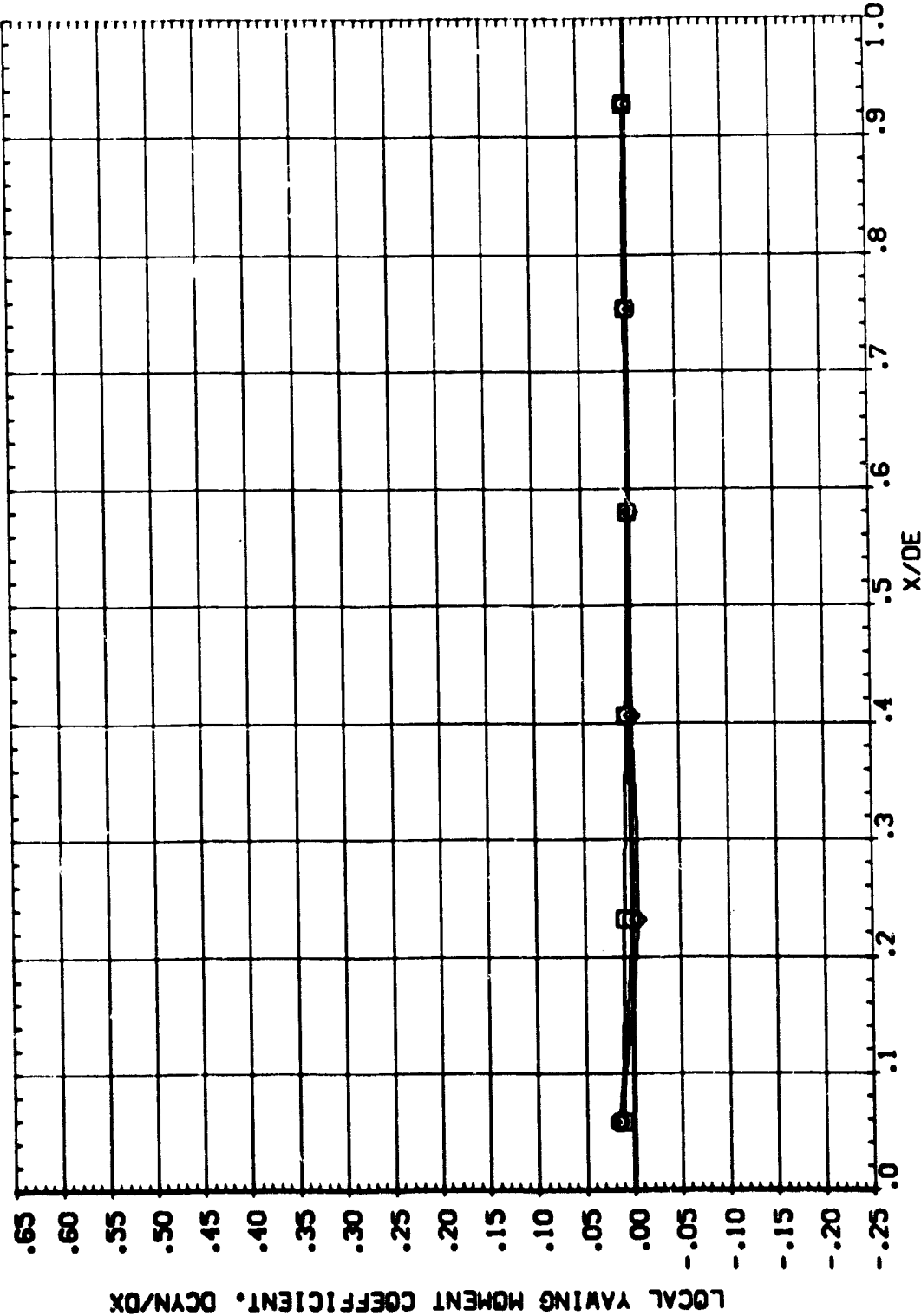
SYMBOL  
□  
◇

ALPHA  
-8.000  
.000  
6.000

BETA  
0°  
0°  
0°

PARAMETRIC VALUES  
POWER 1.000  
SPR 2.330  
GY1 -9.000  
GY2 -9.000  
GY3 -9.000

REFERENCE INFORMATION  
SREF 49.4000 SQ.FT.  
LREF 50.7000 INCHES  
BREF 50.7000 INCHES  
VREF 158.0000 INCHES  
WREF .0000 INCHES  
ZREF .0000 INCHES  
SCALE .0150



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

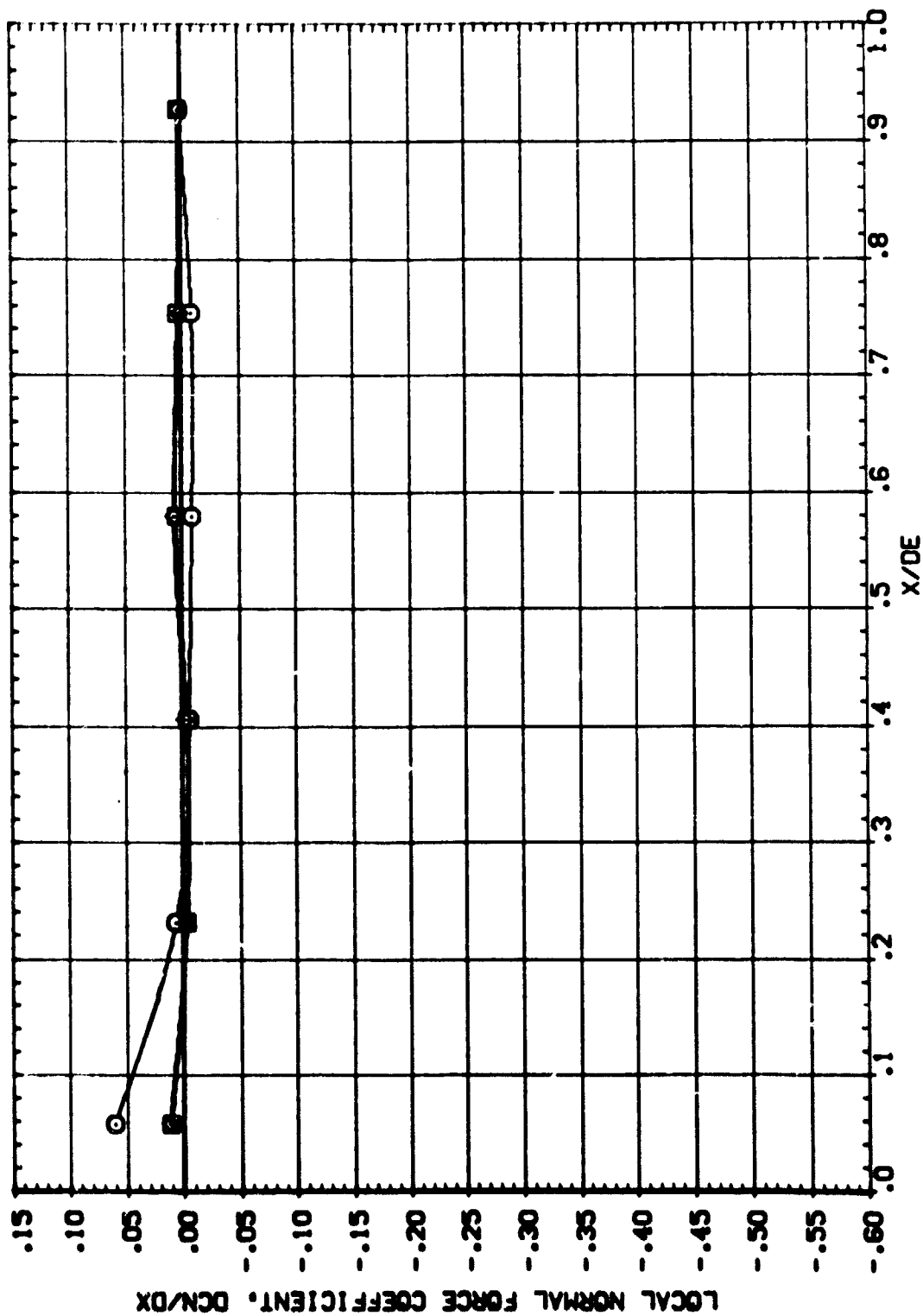
(A)MACH = .90

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032

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF804)

SYMBOL		BETA		ALPHA		PARAMETRIC VALUES		REFERENCE INFORMATION	
□	○	-6.000	.000	0°	1.000	POWER	1.000	SREF	49.4000
		.000	.000	0°	2.300	SWPR	2.300	LSREF	90.7000
		6.000	.000	0°	-9.000	SWPR	-9.000	BSREF	90.7000
				0°	-9.000	SWPR	-9.000	158P	158.0000
				0°	-9.000	SWPR	-9.000	218P	218.0000
				0°	-9.000	SWPR	-9.000	218P	218.0000
				0°	-9.000	SWPR	-9.000	SCALE	.0180
				0°	-9.000	SWPR	-9.000	SCALE	.0180



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

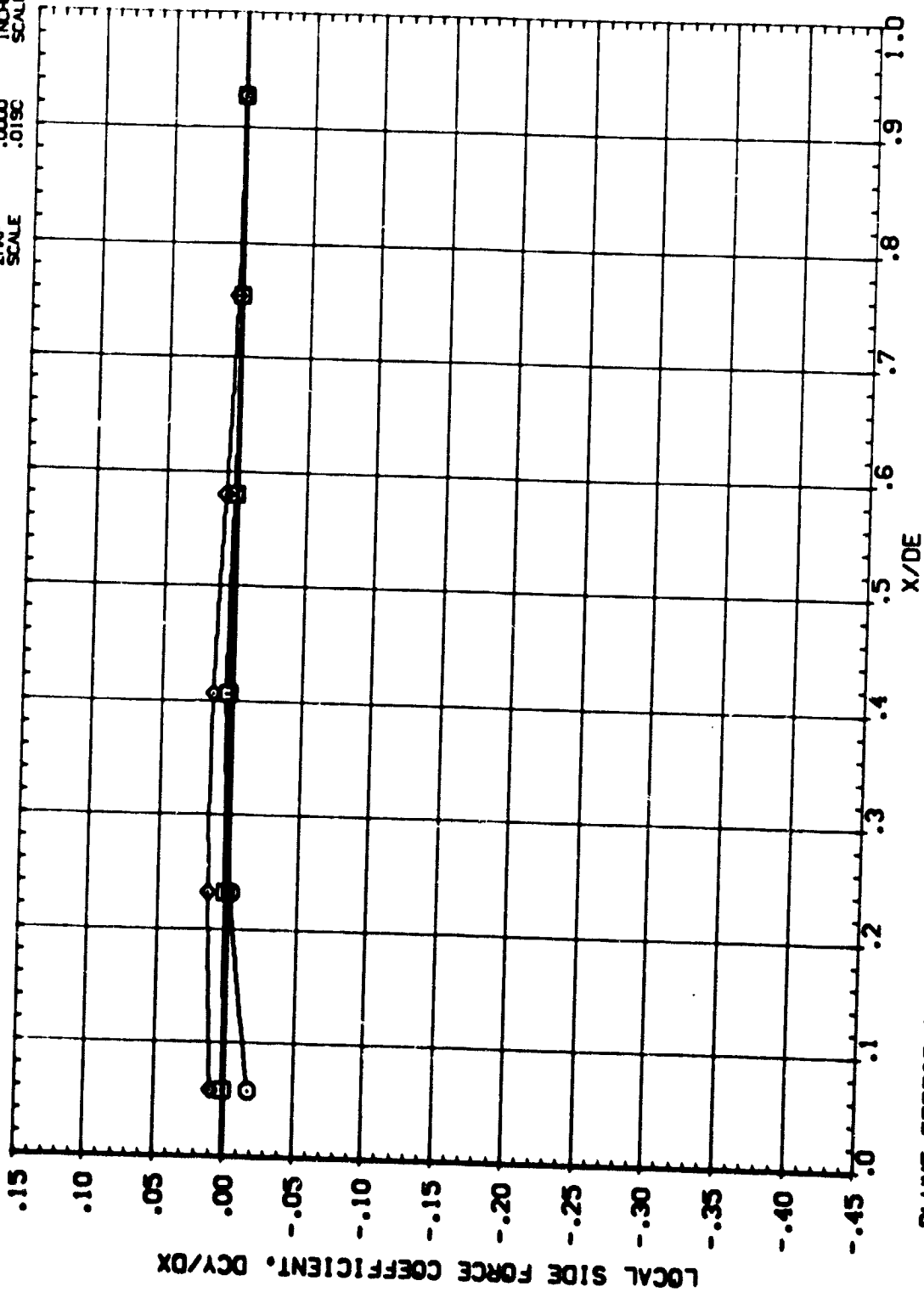
(A)MACH = .90

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333

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF804)

SYMBOL	BETA	PARAMETRIC VALUES				REFERENCE INFORMATION			
		ALPHA	POWER	GY1	GY2	SREF	49.4000	50.7000	50.7000
○	-6.000	0.000	35.200	11.000	0.000	LREF	50.7000	50.7000	50.7000
□	6.000	0.000	11.000	0.000	0.000	BREF	50.7000	50.7000	50.7000
◇		0.000	0.000	0.000	0.000	XREF	50.7000	50.7000	50.7000
		0.000	0.000	0.000	0.000	YREF	50.7000	50.7000	50.7000
		0.000	0.000	0.000	0.000	ZREF	50.7000	50.7000	50.7000
		0.000	0.000	0.000	0.000	SCALE	50.7000	50.7000	50.7000

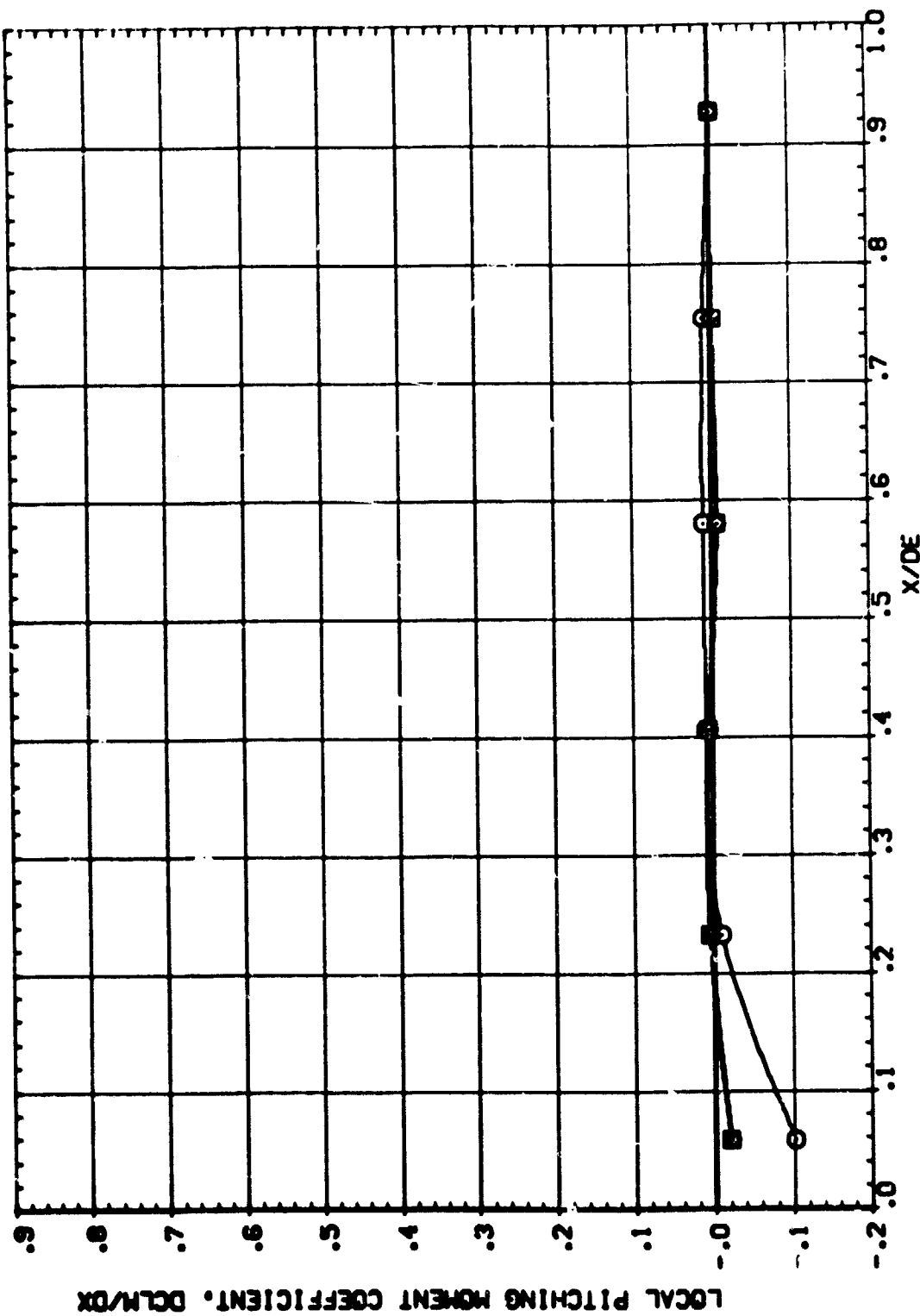


PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

SREF	49.4000	SD.FT.
LREF	50.7000	INOES
GREF	50.7000	INOES
XREF	150.0000	INOES
YREF	.0000	INOES
ZREF	.0150	INOES
SCALE	.0150	SCALE

SPINEL	BETA	ALFA	MAGNETIC VALUES
□	-0.000	POWER	1.000
□	0.000	30.200	2.300
◇	6.000	671	9.000
		672	9.000
		673	9.000



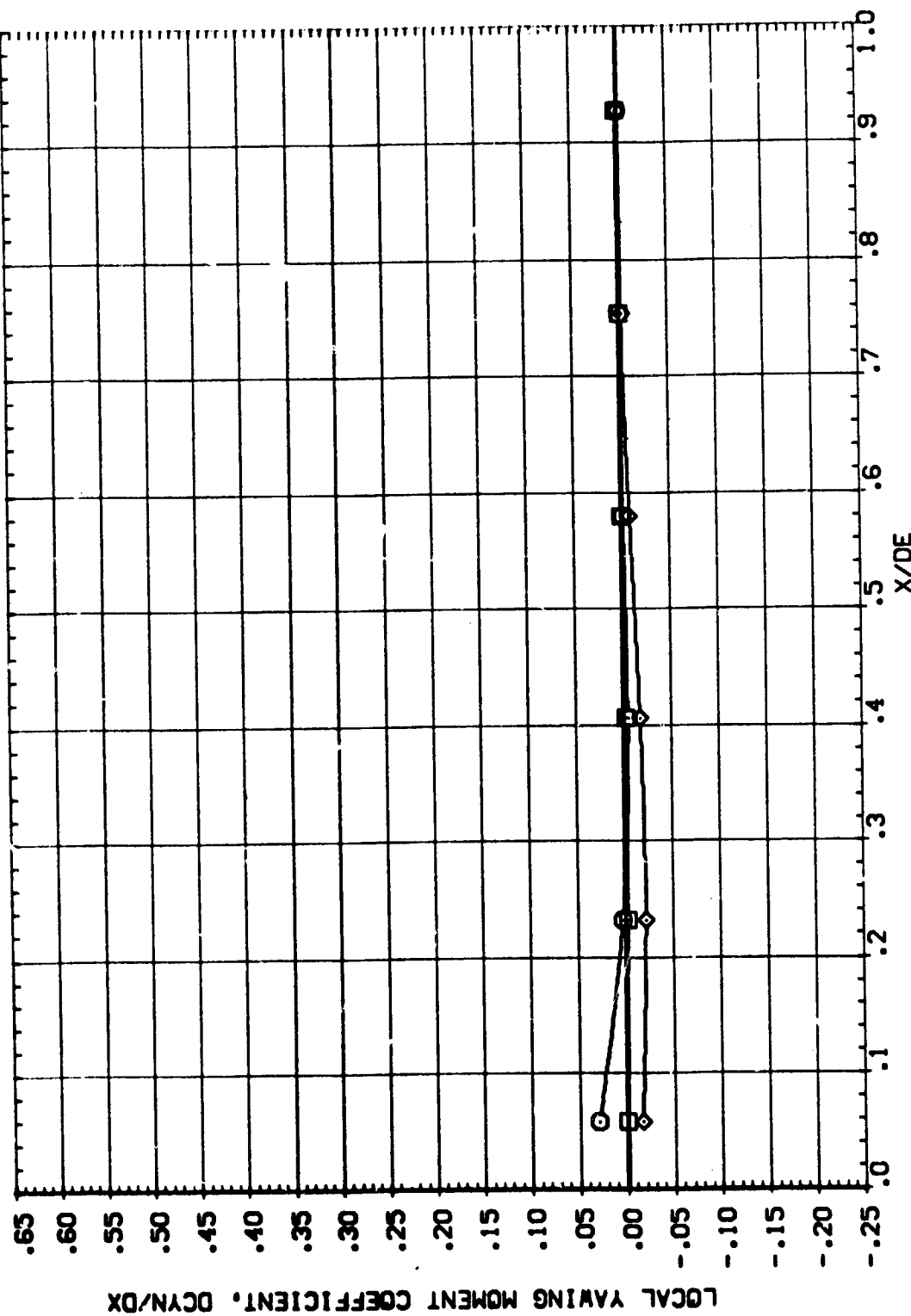
# PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

$$(\lambda)_{\text{MACH}} = .90$$

335

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF804)

SYMBOL		BETA		ALPHA		PARAMETRIC VALUES				REFERENCE INFORMATION			
□	◇	-	.	6.000	.000	36.200	11.000	.000	.000	SREF	49.4000	50.7000	50.7000
◇	◇	6.000	.000	.000	.000	GY1	GY2	GY3	GY4	LREF	50.7000	50.7000	50.7000
◇	◇	6.000	.000	.000	.000	GY1	GY2	GY3	GY4	XTRP	158.0000	158.0000	158.0000
◇	◇	6.000	.000	.000	.000	GY1	GY2	GY3	GY4	ZTRP	.0000	.0000	.0000
◇	◇	6.000	.000	.000	.000	GY1	GY2	GY3	GY4	SCALE	.0190	.0190	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

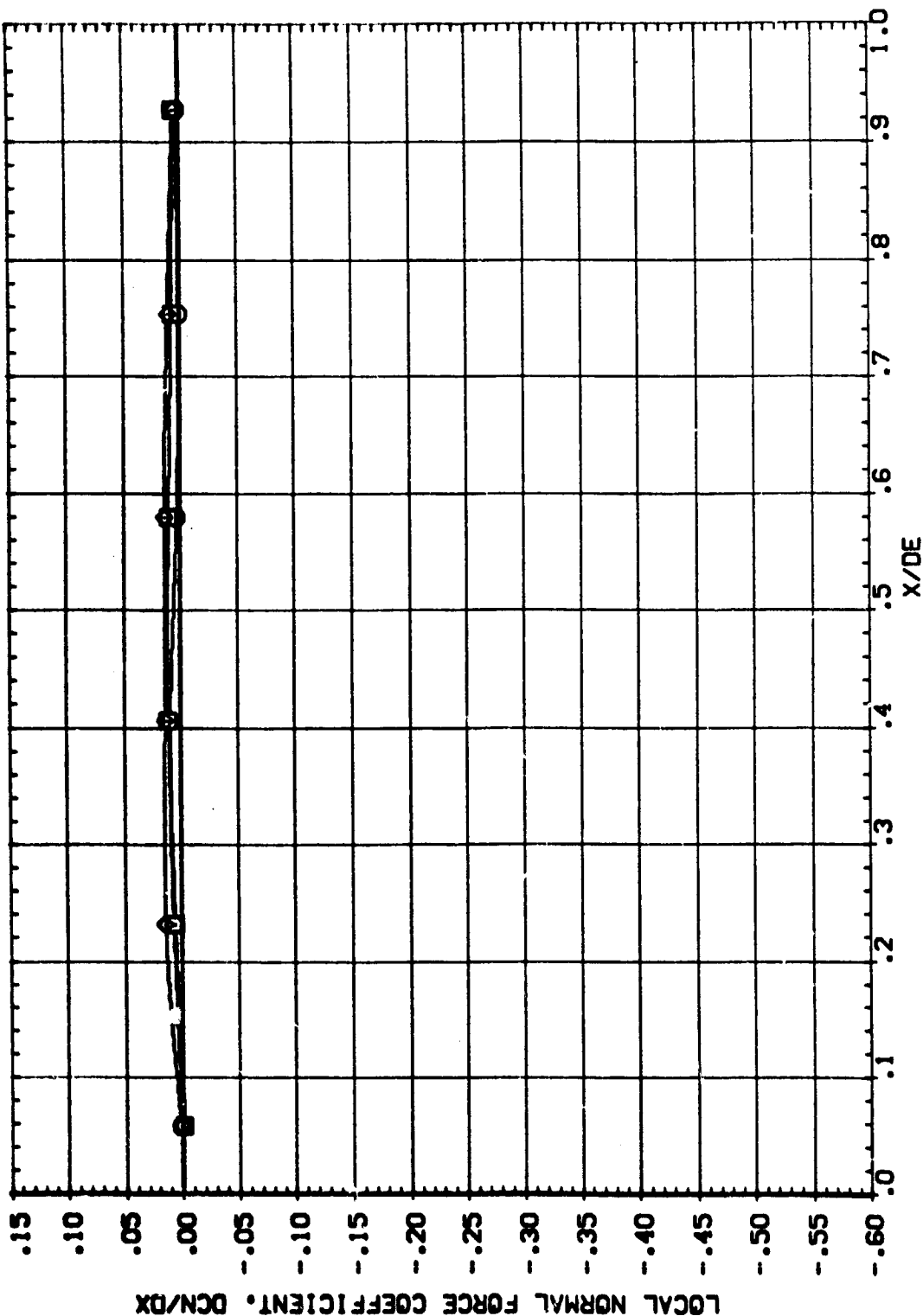
(A) MACH = .90





CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUFB05)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
□	-8.000	.000	.000 POWER	SREF 49.4000
◇	.000	11.000	.000 GY1	LREF 50.7000
	6.000	.000	.000 GY2	BREF 50.7000
		.000	.000 GY3	XREF 158.0000
		.000	.000	YREF .0000
		.000	.000	ZREF .0000
		.000	.000	SCALE .0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

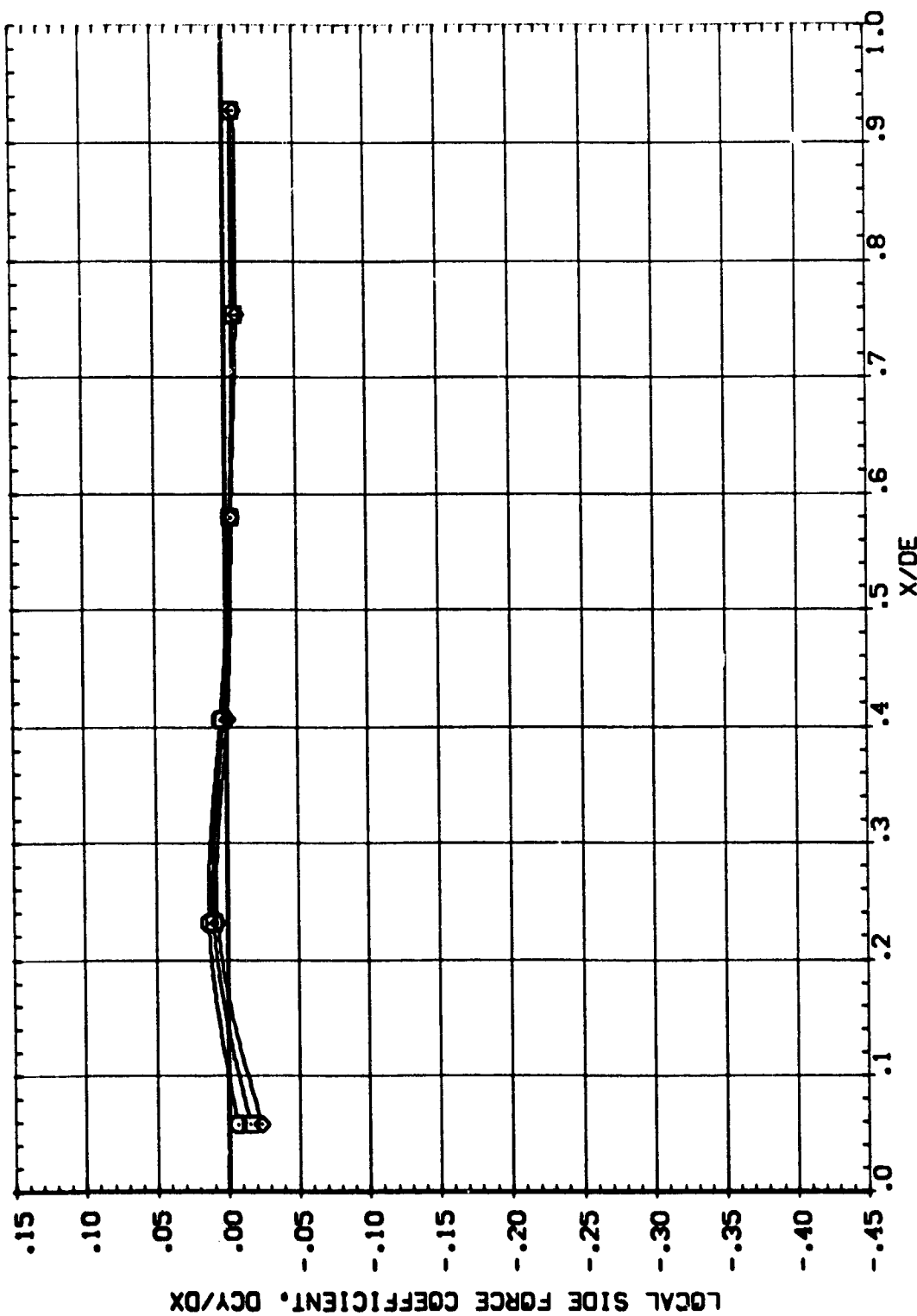
(A)MACH = 1.20

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CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF805)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION		
□	-8.000		.000	POWER	.000	SREF	19.4000	50. FT.
◇	.000	GP1	11.000	GY1	-9.000	LREF	50.7000	INCHES
	6.000	GP2	.000	GY2	-9.000	BREF	50.7000	INCHES
		GP3	.000	GY3	.000	XMRP	158.0000	INCHES
						YMRP	.0000	INCHES
						ZMRP	.0000	INCHES
						SCALE	.0190	SCALE



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

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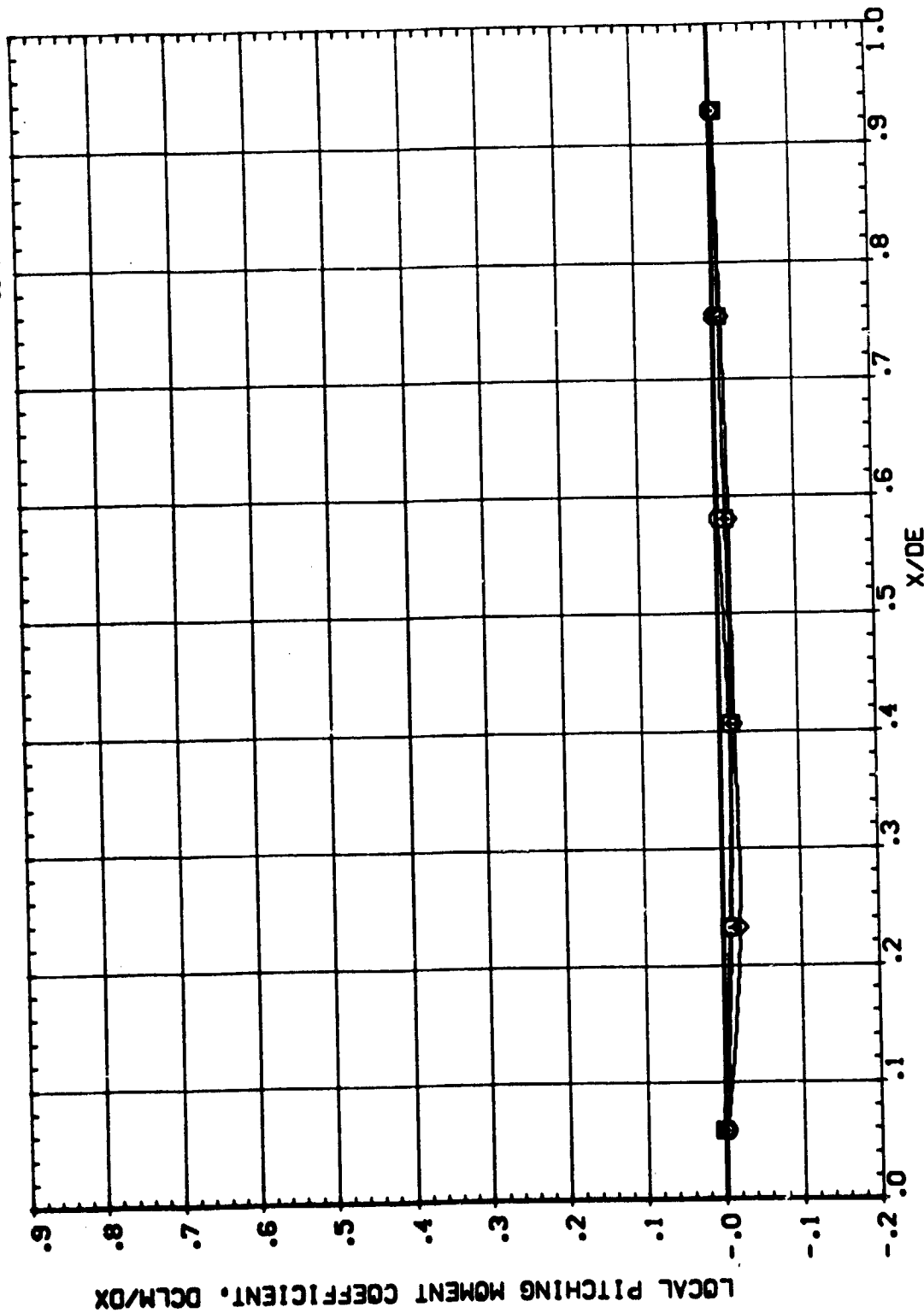
CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF805)

SYMBOL  
□  
◇

PARAMETRIC VALUES	
ALPHA	BETA
-8.000	GP1
.000	GP2
6.000	GP3
.000	POWER
11.000	GY1
.000	GY2
.000	GY3
.000	

REFERENCE INFORMATION

SREF	49.4000	50.000
LREF	90.7000	INOES
BREF	90.7000	INOES
YREF	158.0000	INOES
ZREF	.0000	INOES
SCALE	.0190	SCALE



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

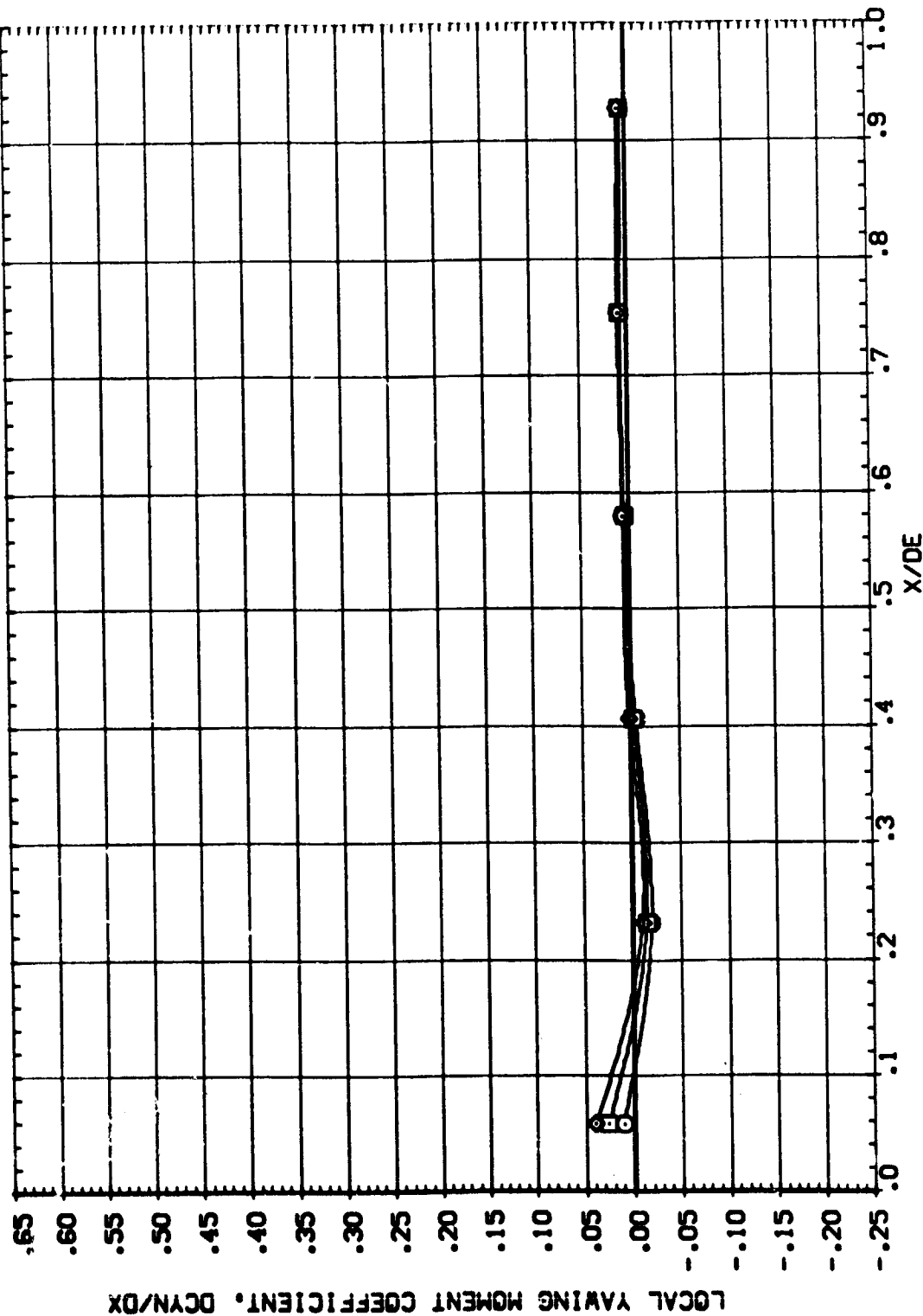
(A)MACH = 1.20

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CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ. (AUFB05)

SYMBOL	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION											
		BETA	POWR	GY1	GY2	GY3	SREF	49.4000	50.4000	50.7000	50.7000	158.0000	.0000	.0000	.0000	.0000	.0190
○	-8.000	.000	.000	-9.000	.000	.000	LREF	90.7000	90.7000	90.7000	90.7000	158.0000	.0000	.0000	.0000	.0000	.0190
□	.000	11.000	.000	-9.000	.000	.000	BREF	90.7000	90.7000	90.7000	90.7000	158.0000	.0000	.0000	.0000	.0000	.0190
◇	6.000	.000	.000	.000	.000	.000	XARP	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0190
		.000	.000	.000	.000	.000	YARP	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0190
		.000	.000	.000	.000	.000	ZARP	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0190
							SCALE	.0190	.0190	.0190	.0190	.0190	.0190	.0190	.0190	.0190	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

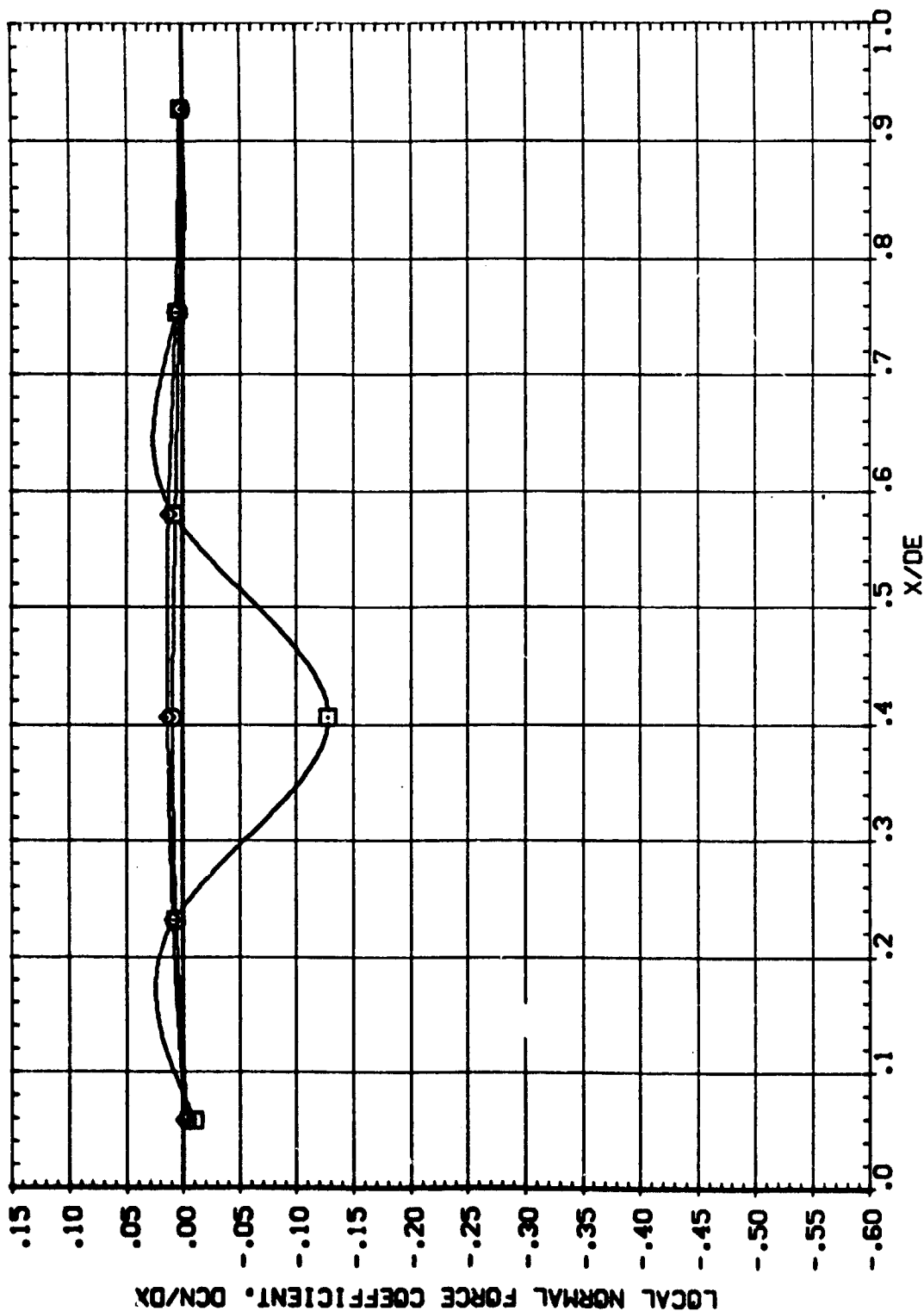
PAGE

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CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF806)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES			REFERENCE INFORMATION			
□	-6.000	GP1	.000	POWER	.000	SREF	48.4000	SO.FT.	
◇	.000	GP2	11.000	GV1	-9.000	LREF	90.7000	INCHES	
	6.000	GP3	.000	GV2	-9.000	BREF	90.7000	INCHES	
			.000	GV3	.000	XWRP	158.0000	INCHES	
						YWRP	.0000	INCHES	
						ZWRP	.0000	INCHES	
						SCALE	.0190	SCALE	



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

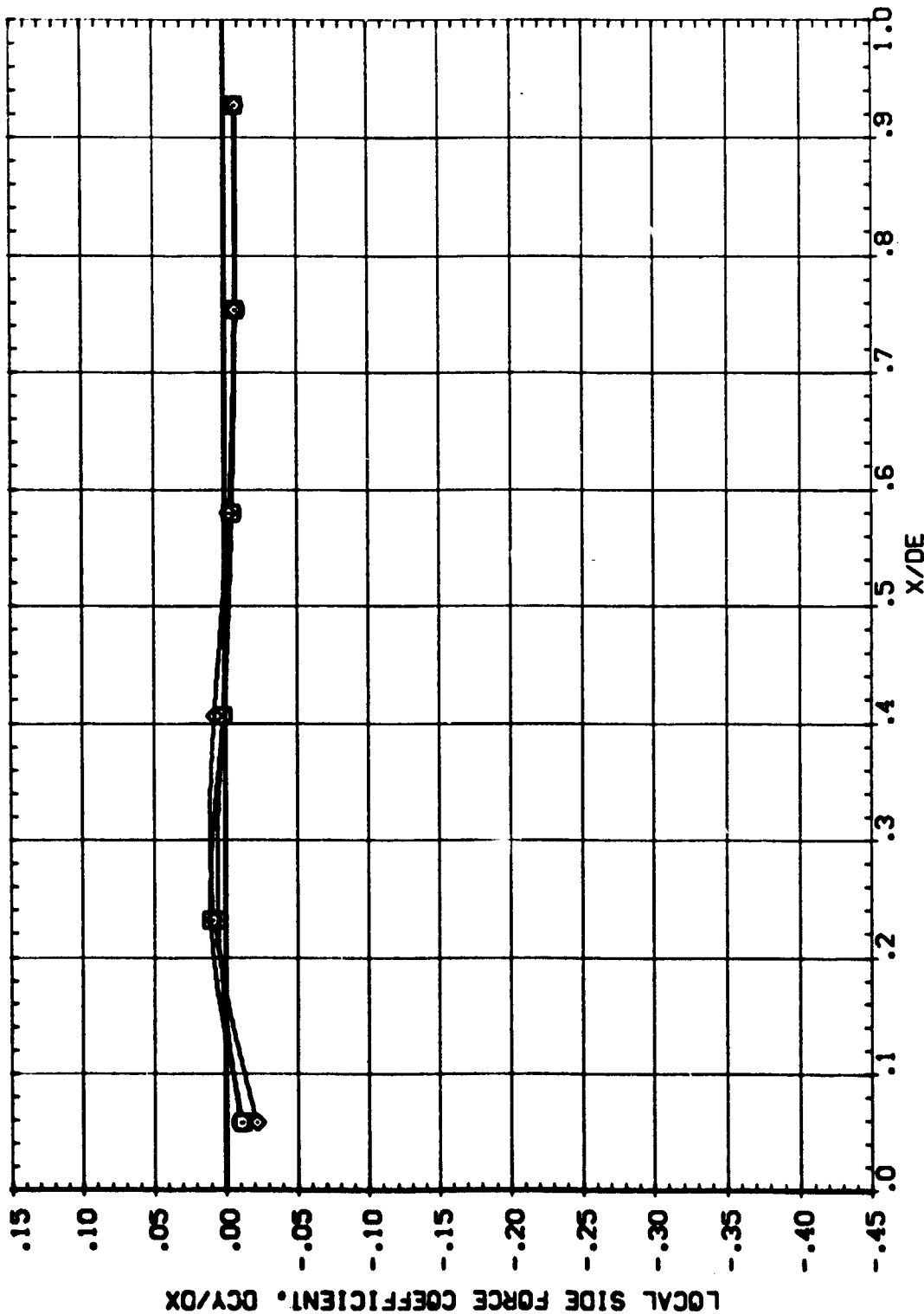
(A)MACH = 1.20

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CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ.(AUF806)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES	REFERENCE INFORMATION
□	-6.000	.000	POWER	SREF 49.4000
◇	.000	11.000	GY1	LSREF 50.7000
	6.000	.000	GY2	BRF 50.7000
		.000	GY3	XREF 156.0000
				YREF .0000
				ZREF .0000
				SCALE .0150



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

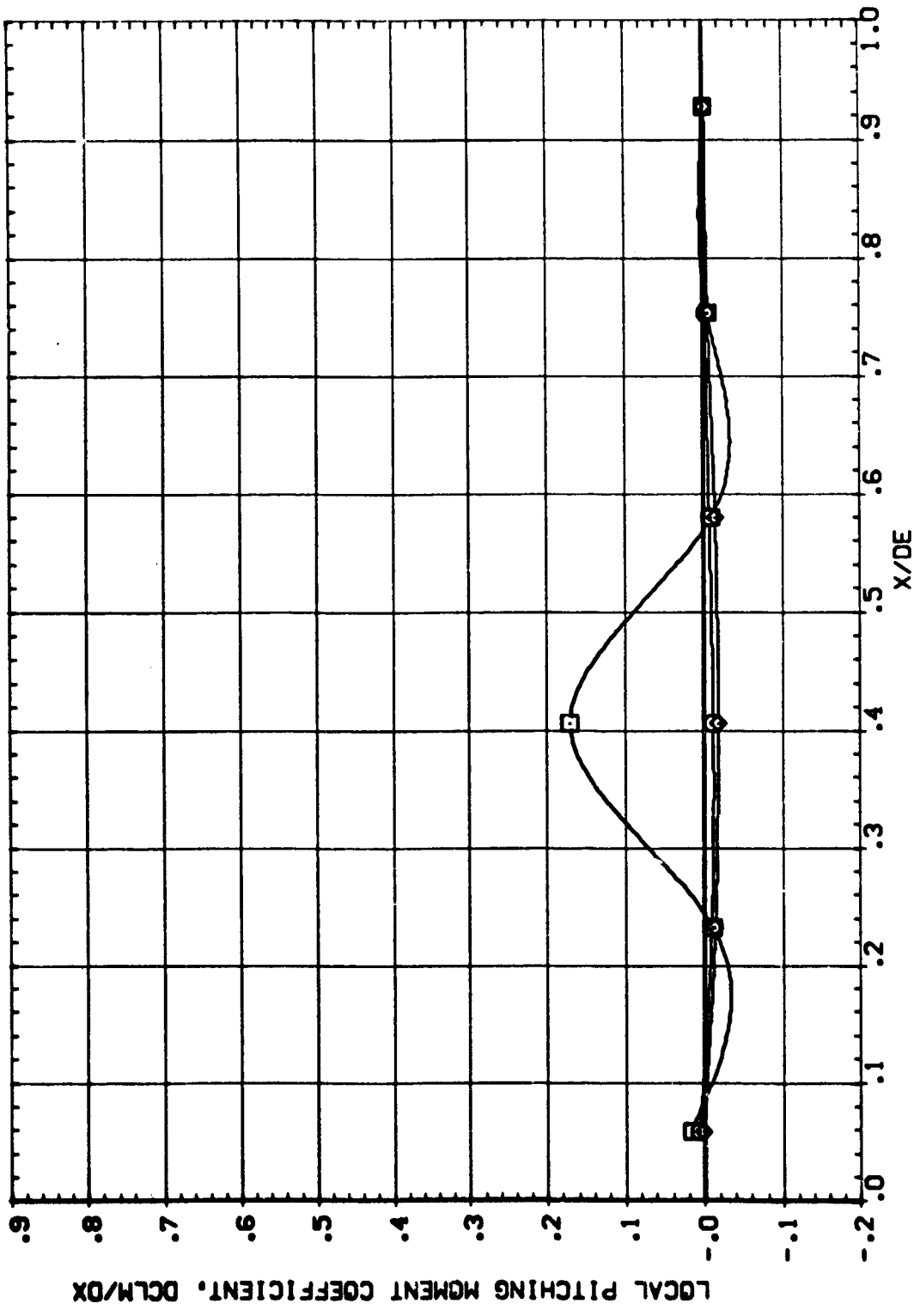
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CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.:AUF8063

SYMBOL	BETA			ALPHA			PARAMETRIC VALUES			POWER			REFERENCE INFORMATION		
	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
□	-6.000	.000	.000	0°1	.000	.000	.000	.000	.000	.000	.000	.000	SREF	49.4000	50.4000
◇	6.000	.000	.000	0°2	.000	.000	.000	.000	.000	.000	.000	.000	LREF	90.7000	90.7000
				0°3	.000	.000	.000	.000	.000	.000	.000	.000	BREF	90.7000	90.7000
													YREF	158.0000	158.0000
													ZREF	.0000	.0000
													ZREF	.0000	.0000
													SCALE	.0150	.0150



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

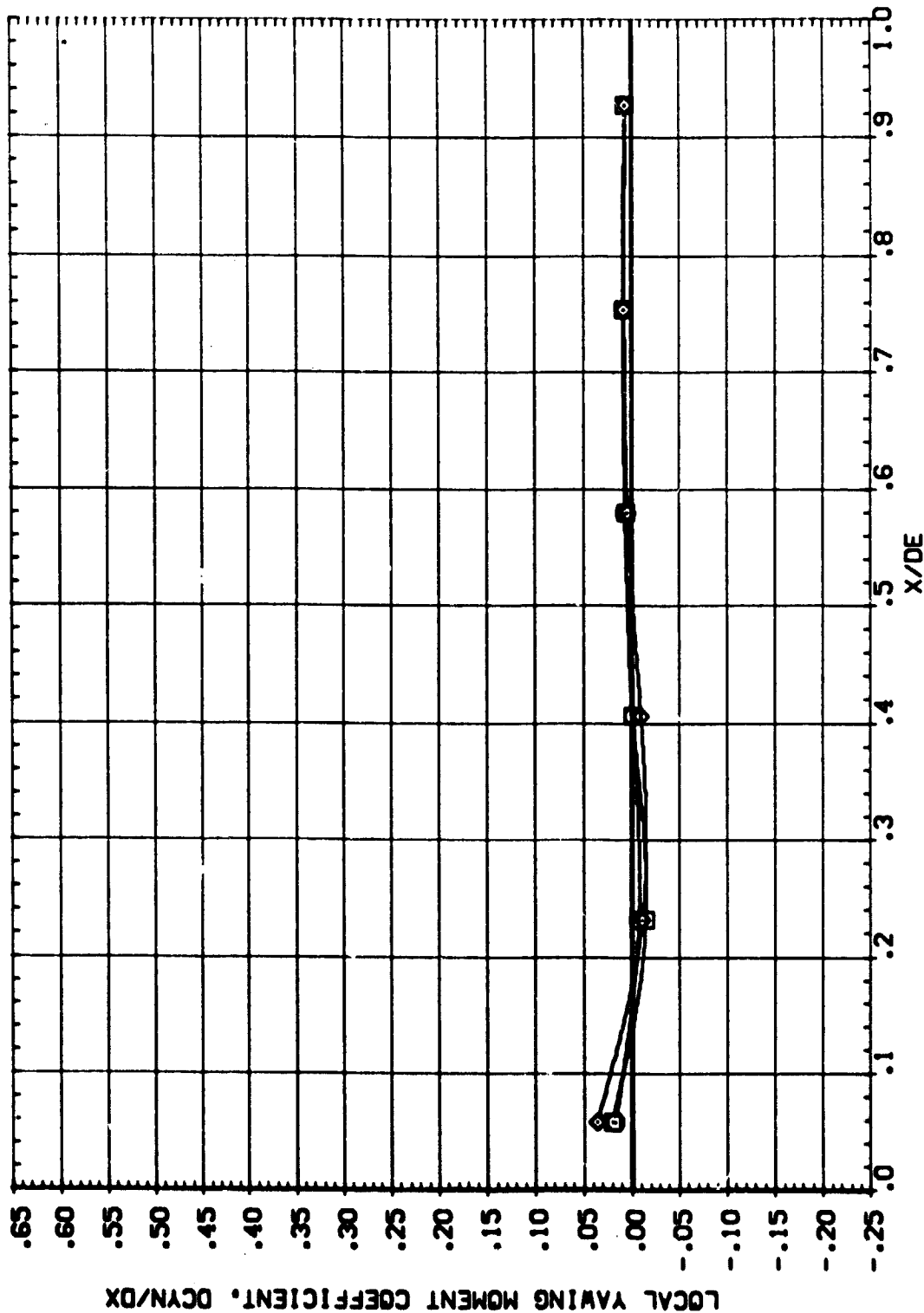
CAJMACH = 1.20

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CAL T14-053 IA36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF806)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES			REFERENCE INFORMATION				
			GP1	GP2	GP3	SREF	LREF	BREF	XHREF	ZHREF
□	-6.000	.000	.000	.000	.000	49.4000	50.7000	158.0000	.0000	.0190
◇	.000	.000	.000	.000	.000	50.7000	50.7000	.0000	.0000	.0000
◇	6.000	.000	.000	.000	.000	50.7000	50.7000	.0000	.0000	.0000



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

PAGE

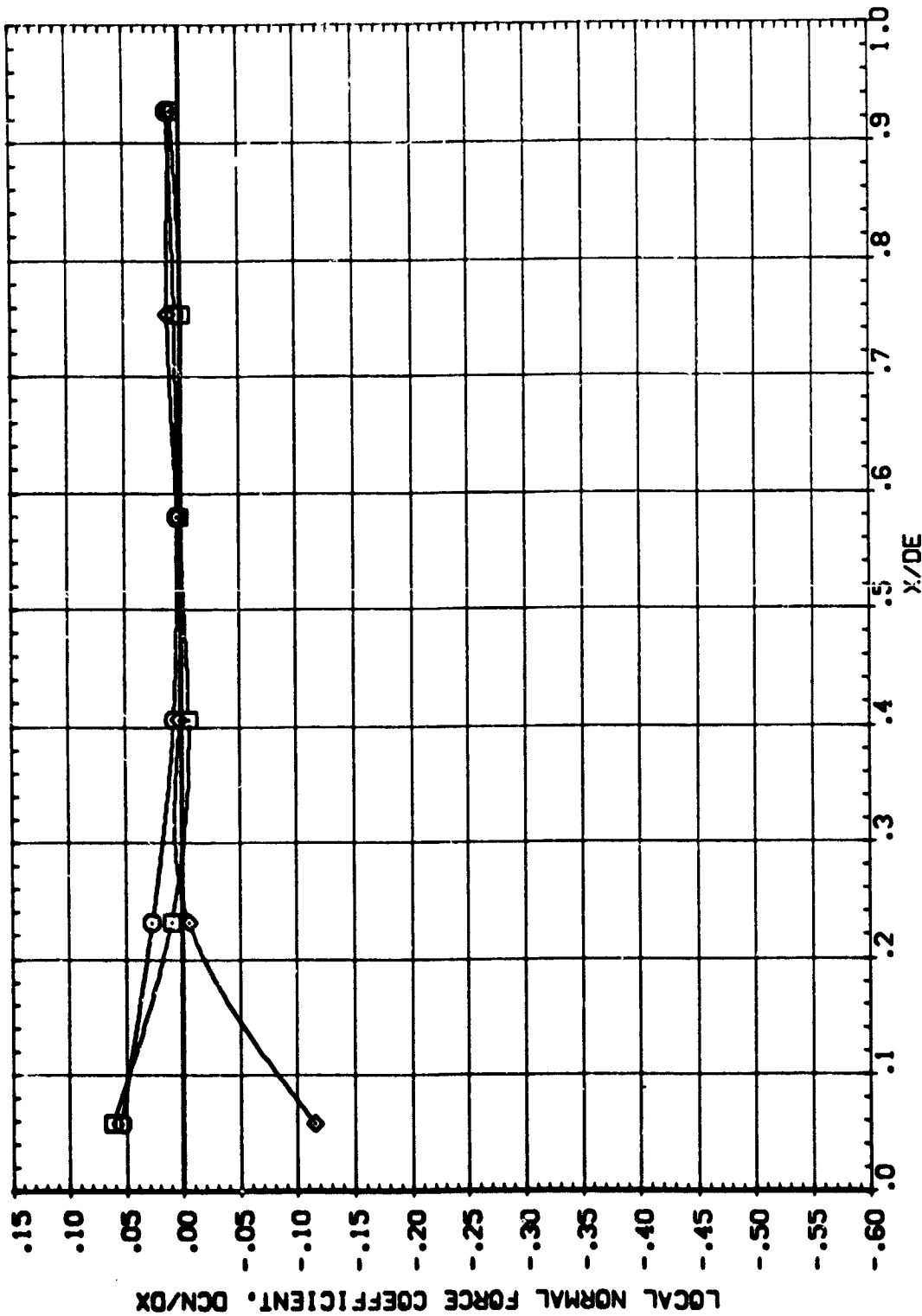
344





CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ.(AUFB07)

SYMBOL	ALPHA			BETA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF
○	-8.000	.000	.000	28.310	.000	POWER	1.000	SREF	49.4000	50.4000	50.4000	50.4000
□	.000	.000	.000	GP1	.000	SRPR	2.020	LRIF	90.7000	90.7000	90.7000	90.7000
◇	6.000	.000	.000	GP2	.000	GY1	-9.000	BRIF	90.7000	90.7000	90.7000	90.7000
				GP3	.000	GY2	-9.000	YPRP	158.0000	158.0000	158.0000	158.0000
						GY3	-9.000	ZPRP	.0000	.0000	.0000	.0000
								SCALE	.0190	.0190	.0190	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

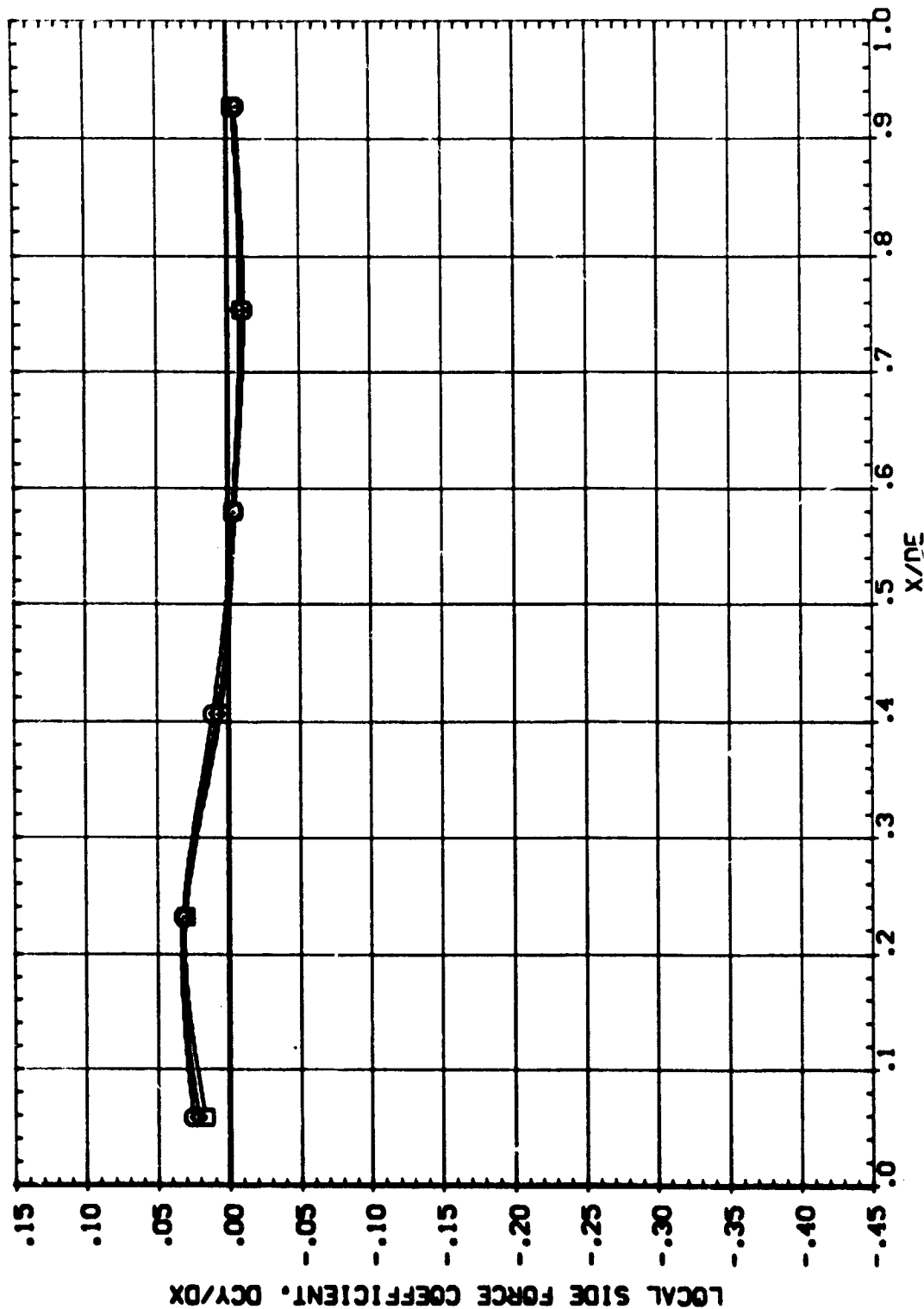
(A)MACH = 1.20

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CAL 14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF807)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION			
□	-8.000		.000	POWER	1.000	STEF	43.4000	50. FT.	
□	.000		28.310	SHPR	2.000	LRFT	90.7000	INCHES	
◇	8.000	CP1	11.000	GV1	-9.000	BRFT	90.7000	INCHES	
		CP2	.000	GV2	-9.000	VRFP	158.0000	INCHES	
		CP3	.000	GV3	-9.000	TRFP	.0000	INCHES	
						SCALE	.0190	SCALE	



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

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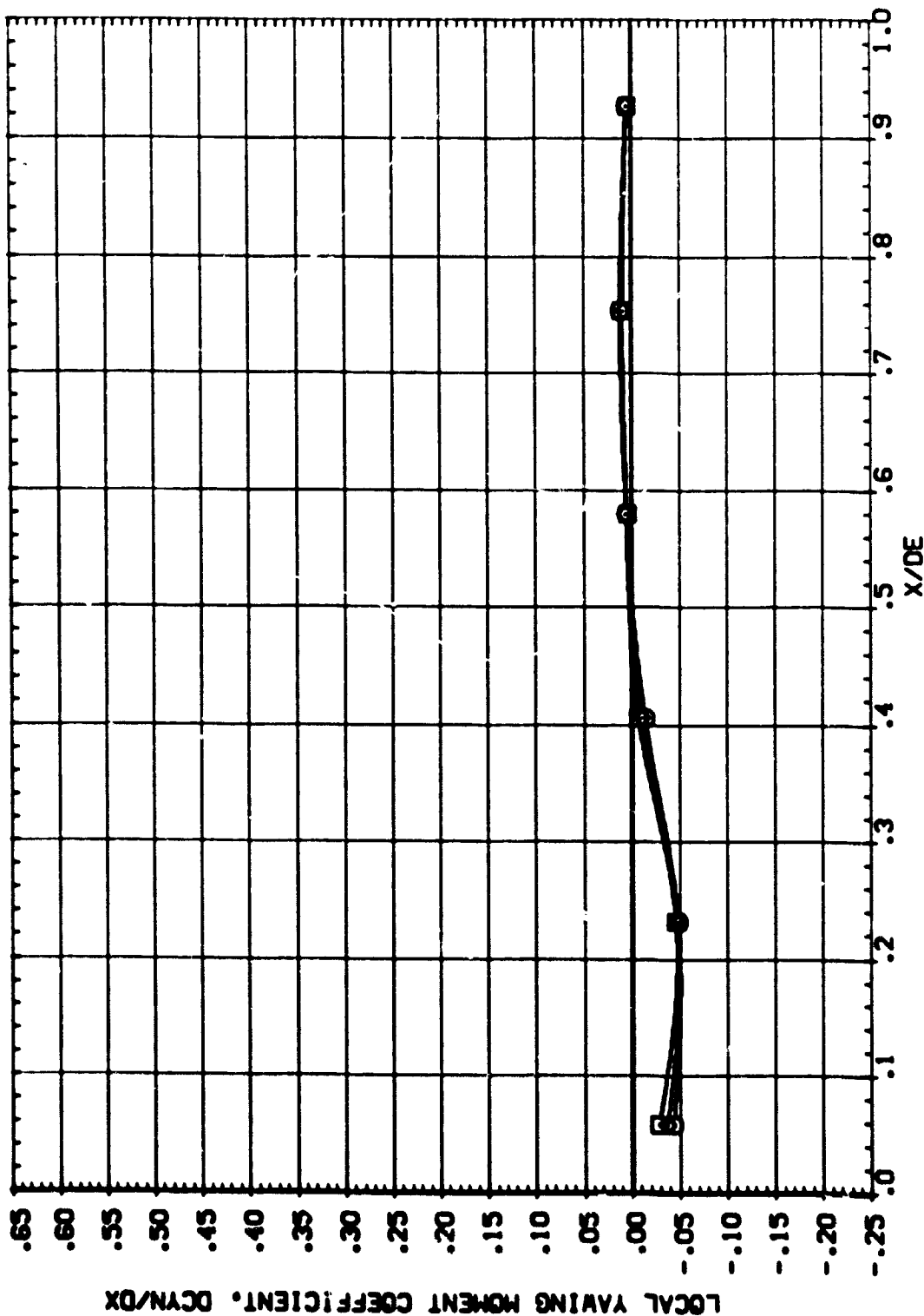
SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-9.000		.000 POWER	SREF 49.4000 50.FT.
□	.000	OPR	28.310 SPRPR	LBET 90.7000 IN-OES
◇	6.000	GP1	11.000 GY1	BRUF 90.7000 IN-OES
		GP2	.000 GY2	ATRP 158.0000 IN-OES
		GP3	.000 GY3	THRP .0000 IN-OES
				ZHRP .0000 SCALE
				.0150

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF807)

SYMBOL ALPHA BETA  
 □ -8.000  
 □ .000  
 ◇ 6.000

PARAMETRIC VALUES  
 .030 POWER 1.000  
 28.310 SHPR 2.000  
 11.000 GV1 -9.000  
 .000 GV2 -9.000  
 .000 GV3 -9.000

REFERENCE INFORMATION  
 SREF 49.4000 SQ.FT.  
 LREF 50.7000 IN-ES  
 BREF 50.7000 IN-ES  
 WREF 158.0000 IN-ES  
 WREF .0000 IN-ES  
 WREF .0000 IN-ES  
 SCALE .0150



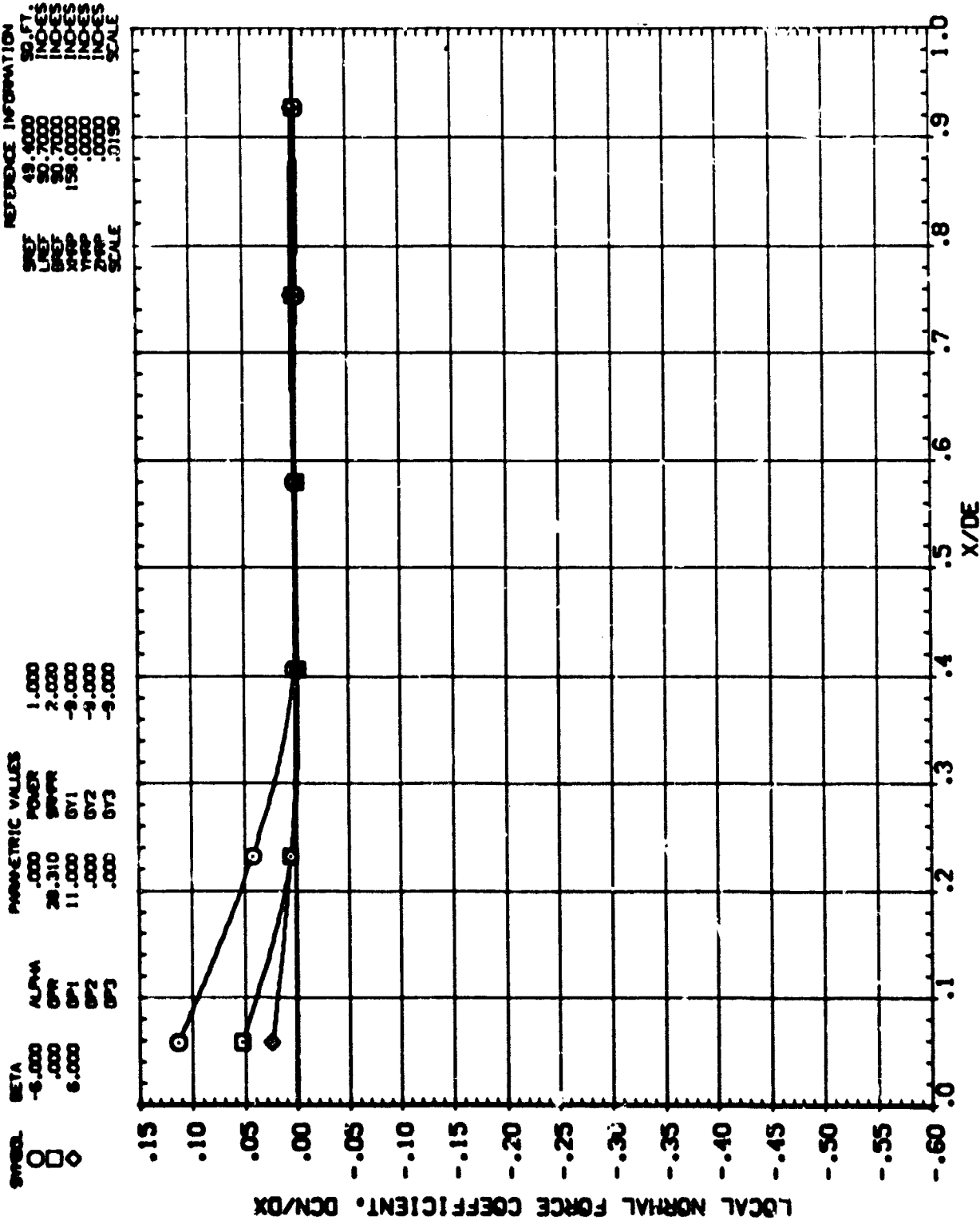
PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

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SREF	49.4000	50.FT.
LREF	50.7000	IN-ES
BREF	50.7000	IN-ES
XREF	158.0000	IN-ES
YREF	.0000	IN-ES
ZREF	.0000	IN-ES
SCALE	.0150	SCALE



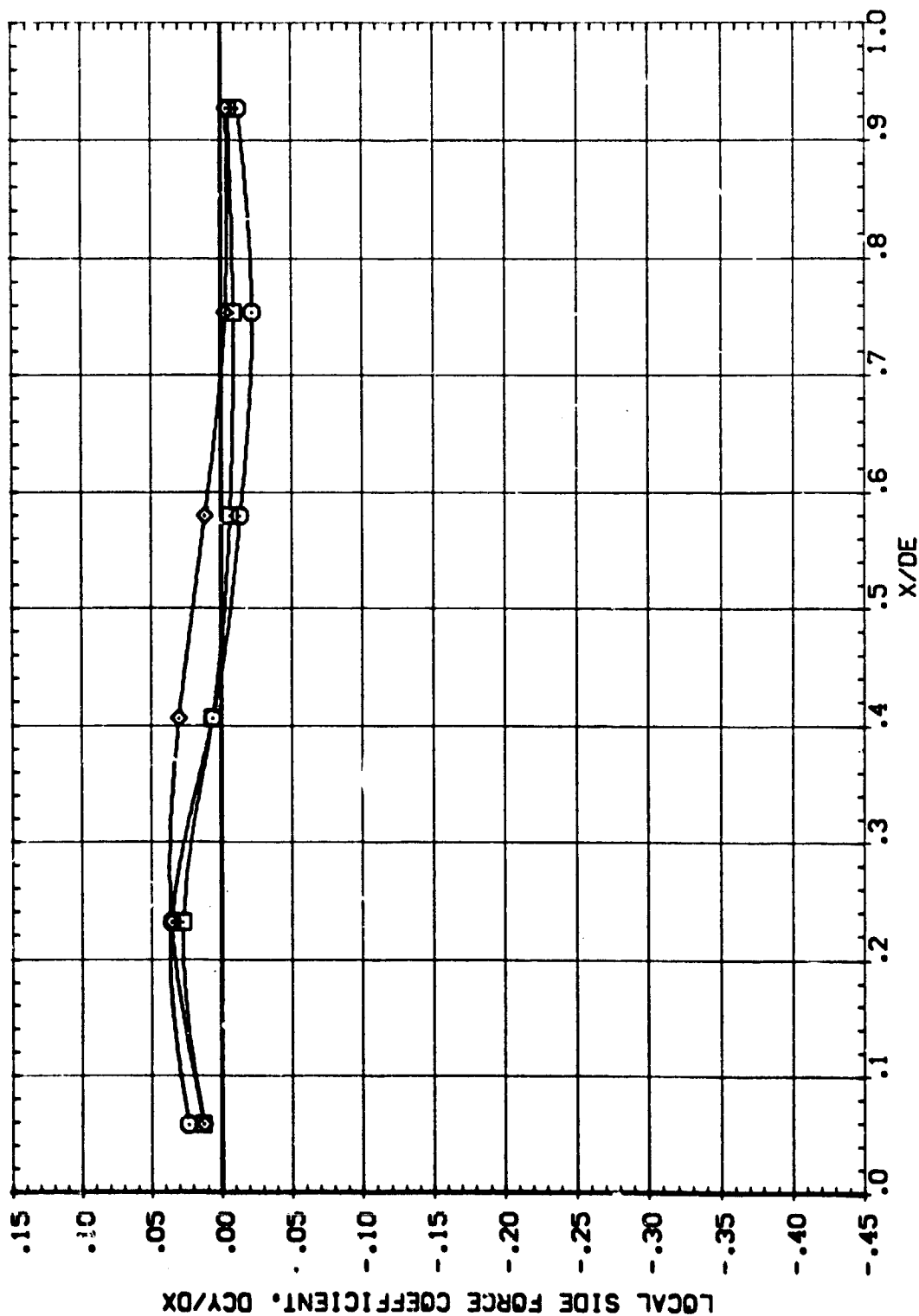
# PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

**{A}MACH = :.19**

349

CAL T14-053 IA36 02 + T1 + 51 LOWER LH MPS NOZ.(AUF808)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	49.4000	50.4000	50.4000
□	-6.000	.000	2.020	LREF	50.7000	50.7000	50.7000
◇	.000	28.310	9.000	EREF	50.7000	50.7000	50.7000
	6.000	11.000	-9.000	WREF	158.0000	158.0000	158.0000
		G2	-9.000	YREF	.0000	.0000	.0000
		G3	-9.000	ZREF	.0000	.0000	.0000
				SCALE	.0190	.0190	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(AJMACH = 1.19

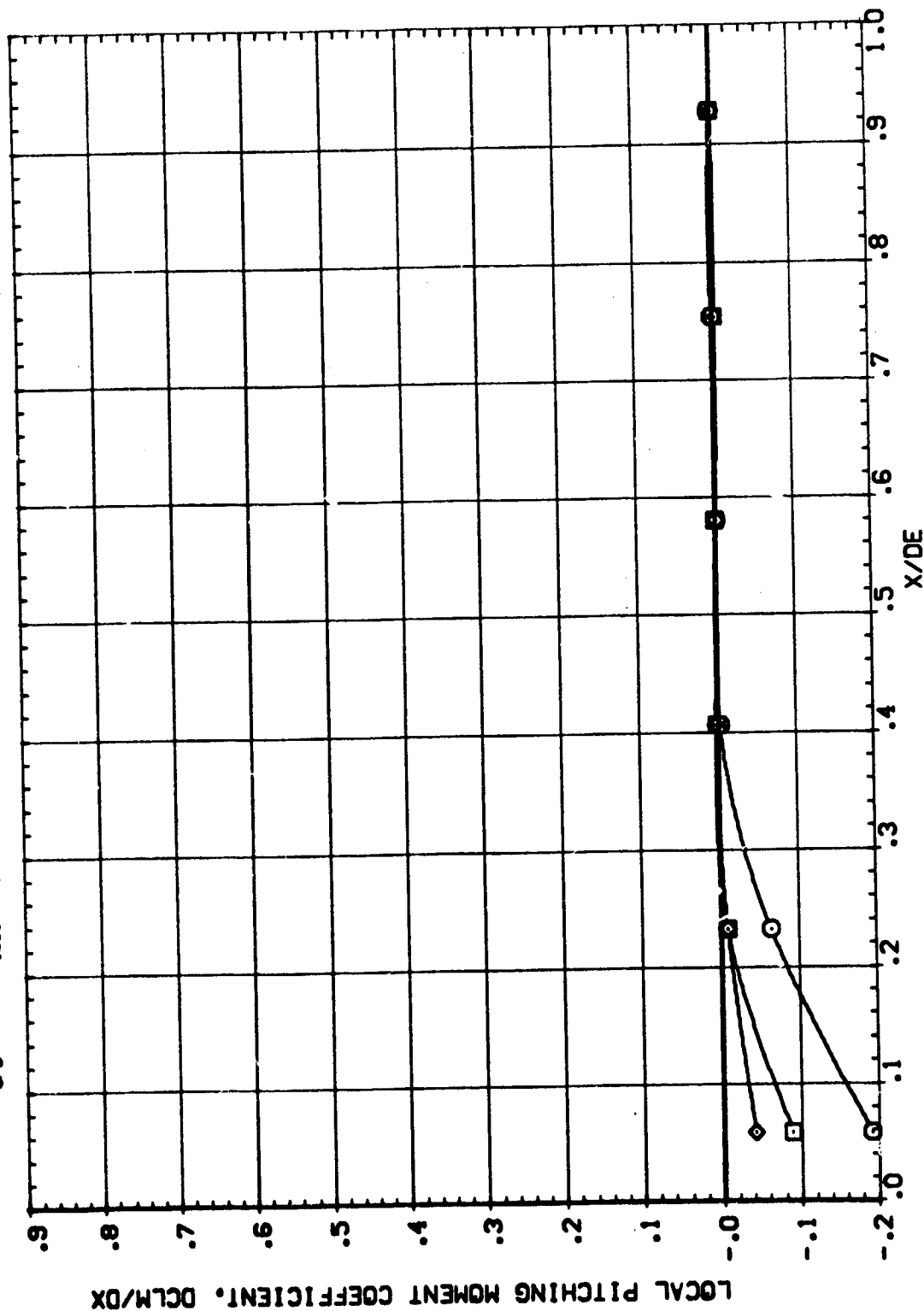
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CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUFB08)

SYMBL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	49.4000	50.4000	50.4000
□	-6.000	.000	1.000	LREF	50.7000	50.7000	50.7000
◇	.000	28.310	2.020	BREF	156.0000	156.0000	156.0000
	6.000	11.000	GP1	YREF	.0000	.0000	.0000
		GP2	GP2	ZREF	.0000	.0000	.0000
		GP3	GP3	SCALE	.0190	.0190	.0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.19

PAGE

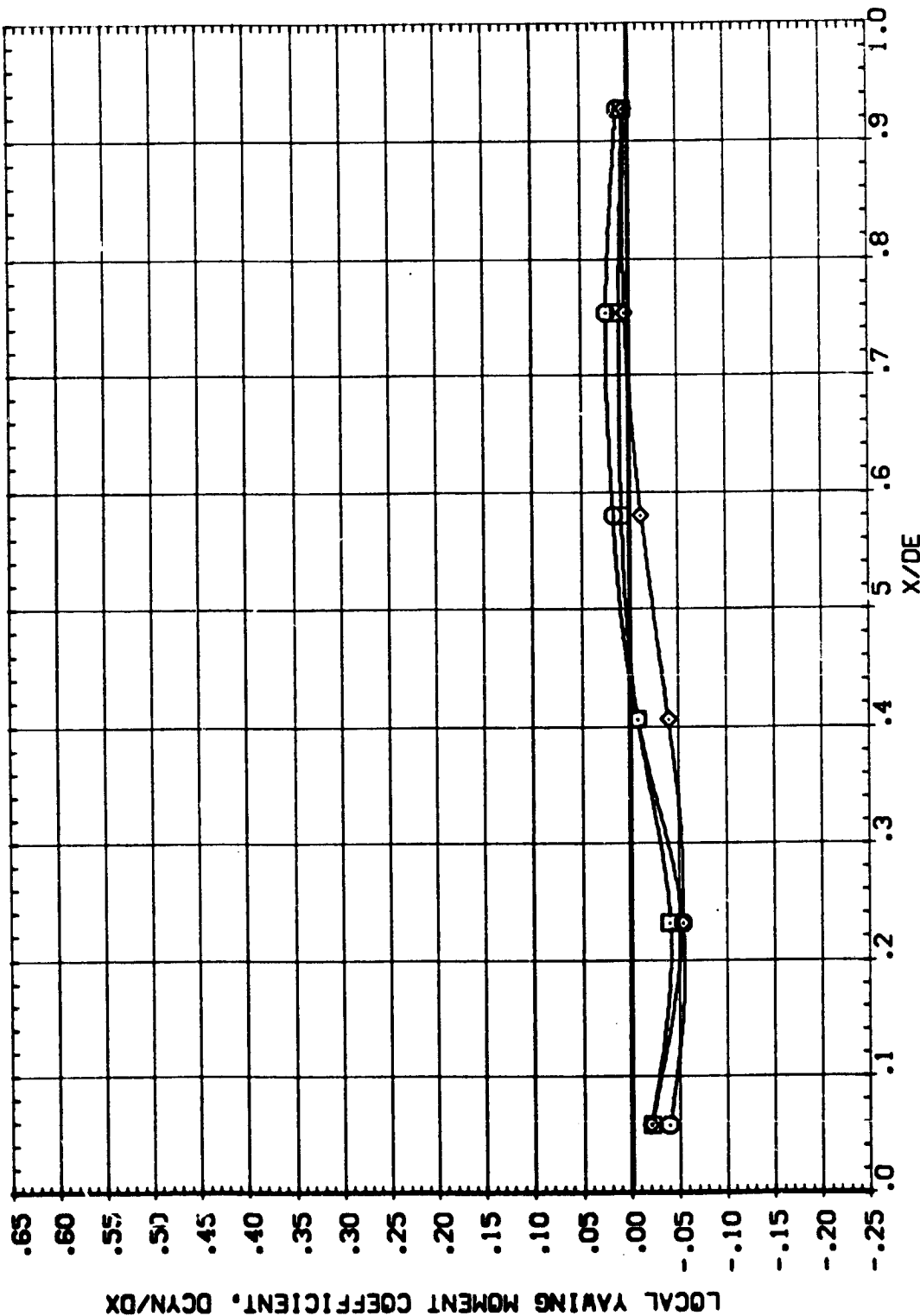
351

CAL T14-053 1A36 02 + T1 + S1 LOWER LH MPS NOZ. (AUF808)

SYMBOL BETA ALPHA  
 ○ -6.000  
 □ .000  
 ◇ 6.000

PARAMETRIC VALUES  
 .000 POWER 1.000  
 28.310 SRPR 2.020  
 11.000 GY1 -9.000  
 .000 GY2 -9.000  
 .000 GY3 -9.000

REFERENCE INFORMATION  
 SREF 49.4000 SO.FT.  
 LREF 90.7000 INCHES  
 BREF 90.7000 INCHES  
 XMRP 158.0000 INCHES  
 YMRP .0000 INCHES  
 ZMRP .0000 INCHES  
 SCALE .0190



PLUME EFFECT ON LOWER LH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.19

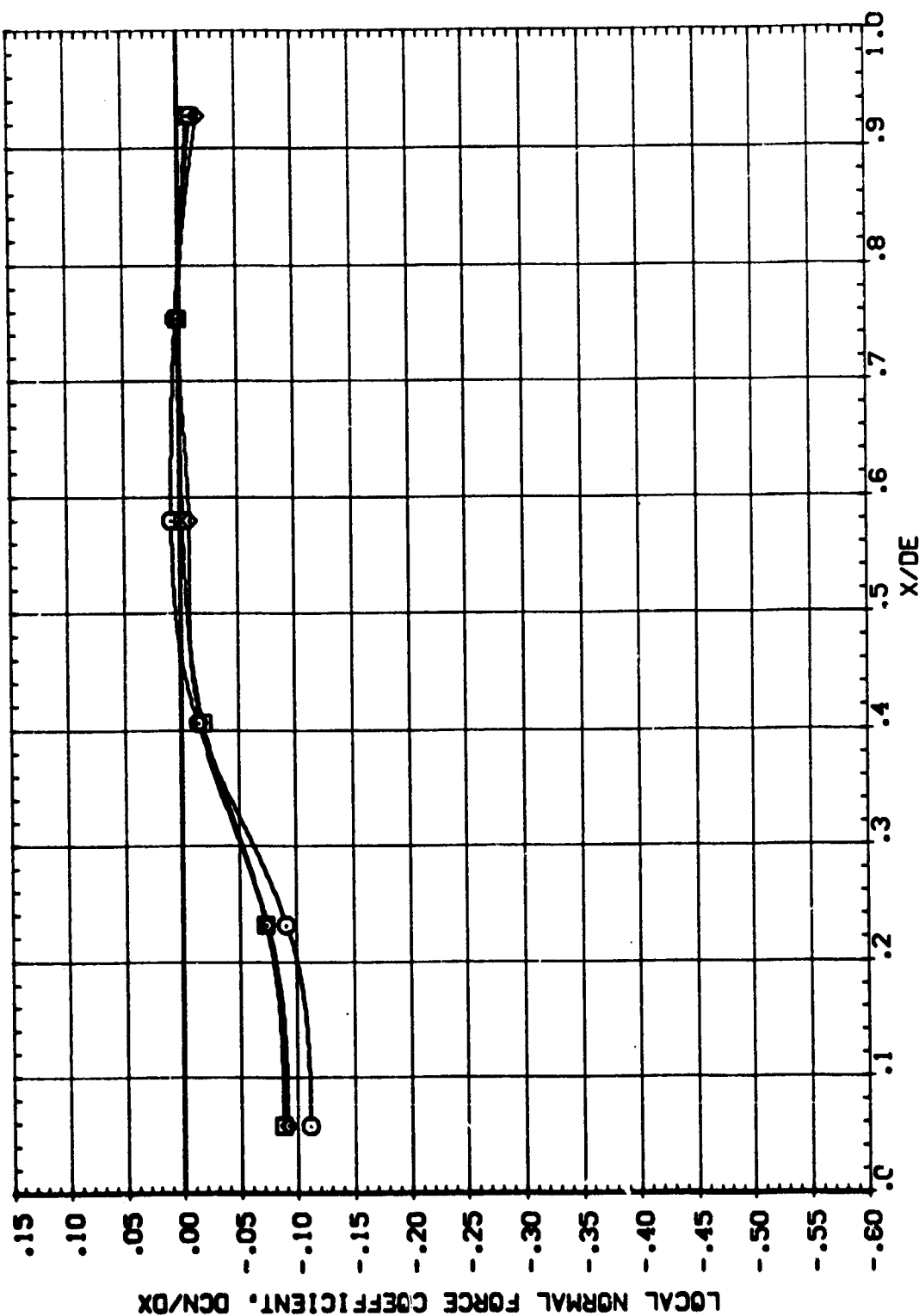
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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.(AUF001)

SYMBOL	ALPHA			BETA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	0	□	◇	-0.000	.000	6.000	.000	.000	.000	SPRT	49.4000	50.000
				.000	.000	.000	11.000	POWER	-9.000	LREF	90.7000	INCHES
				.000	.000	.000	.000	GV1	-9.000	BREF	90.7000	INCHES
				.000	.000	.000	.000	GV2	-9.000	XREF	158.0000	INCHES
				.000	.000	.000	.000	GV3	.000	YREF	.0000	INCHES
										ZREF	.0000	INCHES
										SCALE	.0190	SCALE



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

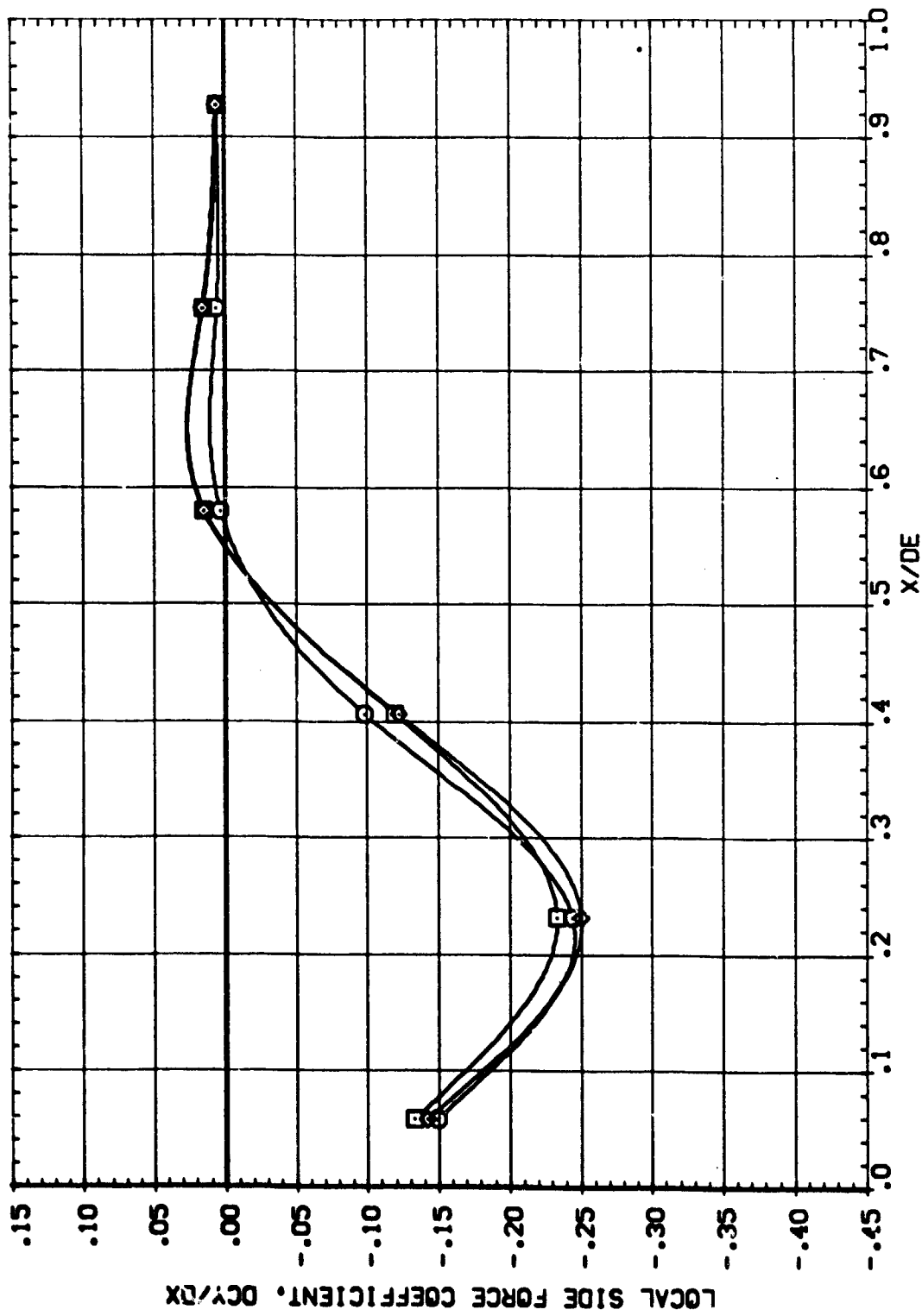
(A)MACH = .90

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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.(AUF001)

SYMBOL	ALPHA			BETA			PARAMETRIC VALUES			SREF			REFERENCE INFORMATION		
	01	02	03	01	02	03	POWER	GV1	GV2	GV3	49.4000	50.7000	50.7000	50.7000	50.7000
○	-8.000	.000	.000	11.000	.000	.000	.000	.000	.000	.000	49.4000	50.7000	50.7000	50.7000	50.7000
□	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	50.7000	50.7000	50.7000	50.7000	50.7000
◇	6.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	50.7000	50.7000	50.7000	50.7000	50.7000
											158.0000	.0000	.0000	.0000	.0000
											YPRP	.0000	.0000	.0000	.0000
											ZPRP	.0000	.0000	.0000	.0000
											SCALE	.0190			



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

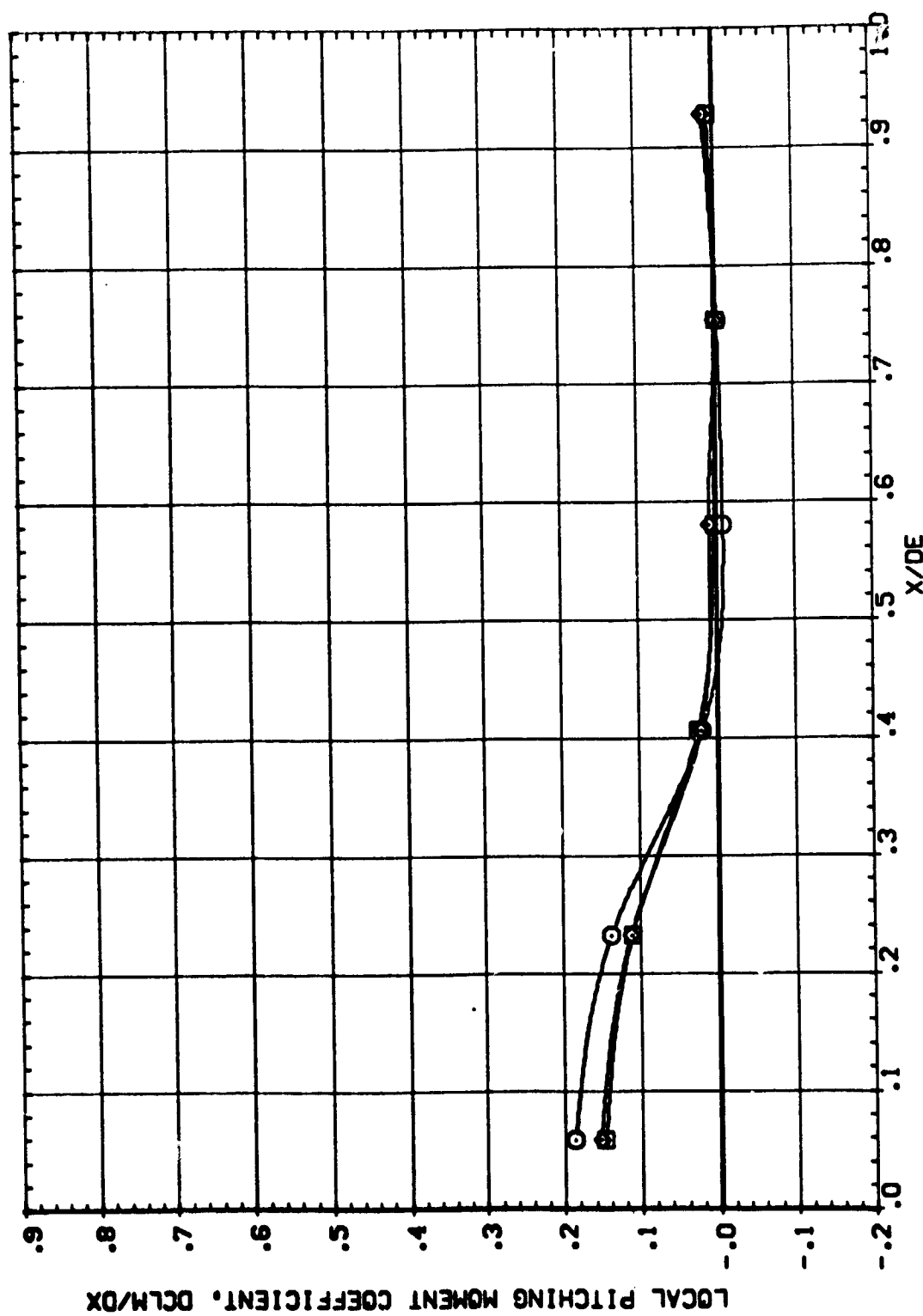
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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF001)

SYMBOL	ALPHA			BETA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	GP1	GP2	GP3	GP1	GP2	GP3	POWER	GY1	GY2	GP1	GP2	GP3
○	-8.000	.000	.000	.000	.000	.000	.000	.000	.000	49.4000	50.4000	50.4000
□	.000	.000	.000	.000	.000	.000	.000	.000	.000	50.7000	50.7000	50.7000
◇	6.000	.000	.000	.000	.000	.000	.000	.000	.000	158.0000	158.0000	158.0000
										YREF	ZREF	SCALE
										.0150	.0150	.0150



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

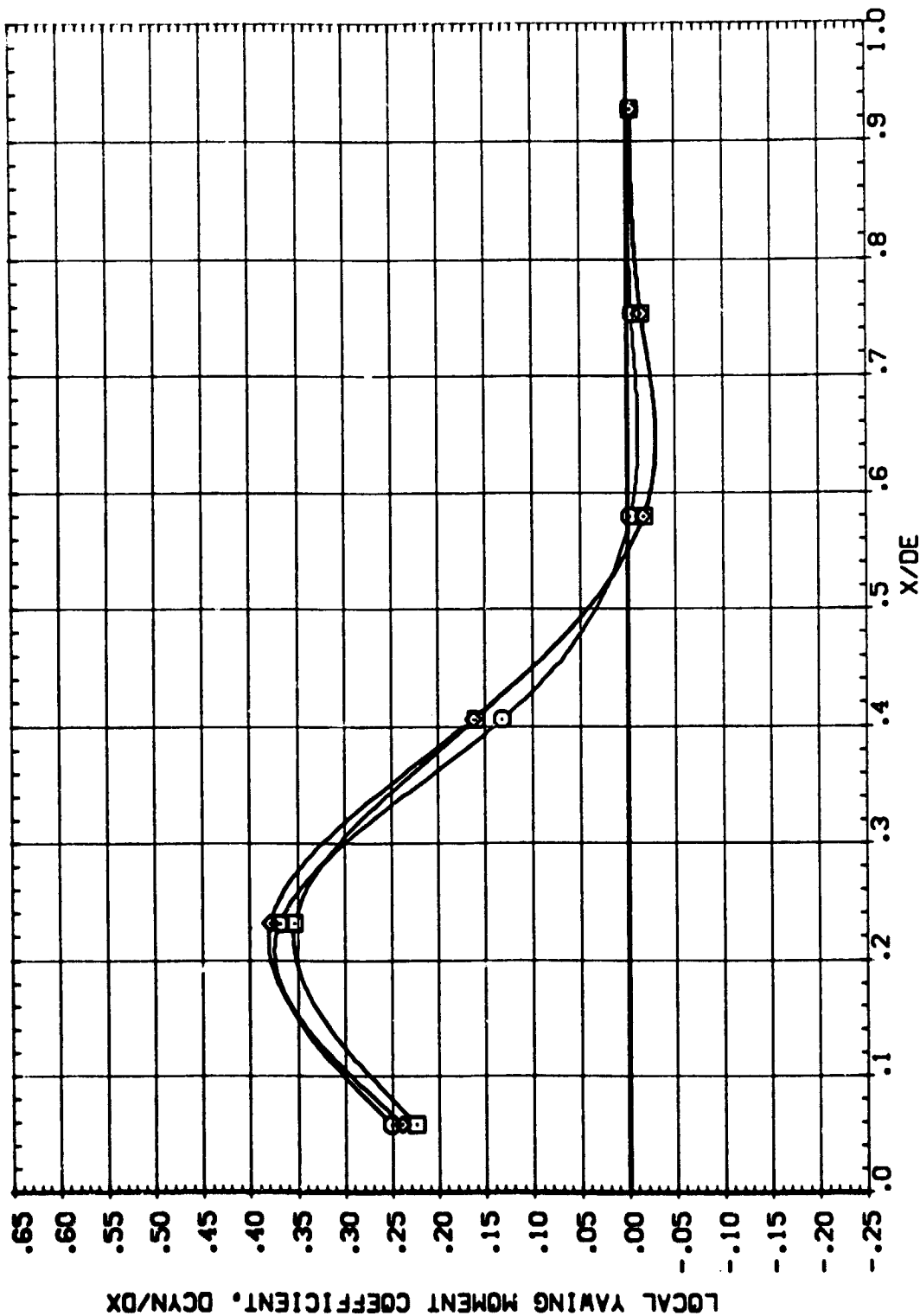
(A)MACH = .90

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355

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC01)

SYMB.	ALPHA	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION		
□	-8.000	GP1	.000	POWER	.000	SREF	49.4000	50.0 FT.
◇	.000	GP2	11.000	GY1	-9.000	LREF	90.7000	IN-ES
	6.000	GP3	.000	GY2	-9.000	BREF	90.7000	IN-ES
			.000	GY3	.000	XGRP	158.0000	IN-ES
			.000			YGRP	.0000	IN-ES
			.000			ZGRP	.0000	IN-ES
						SCALE	.0190	SCALE



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

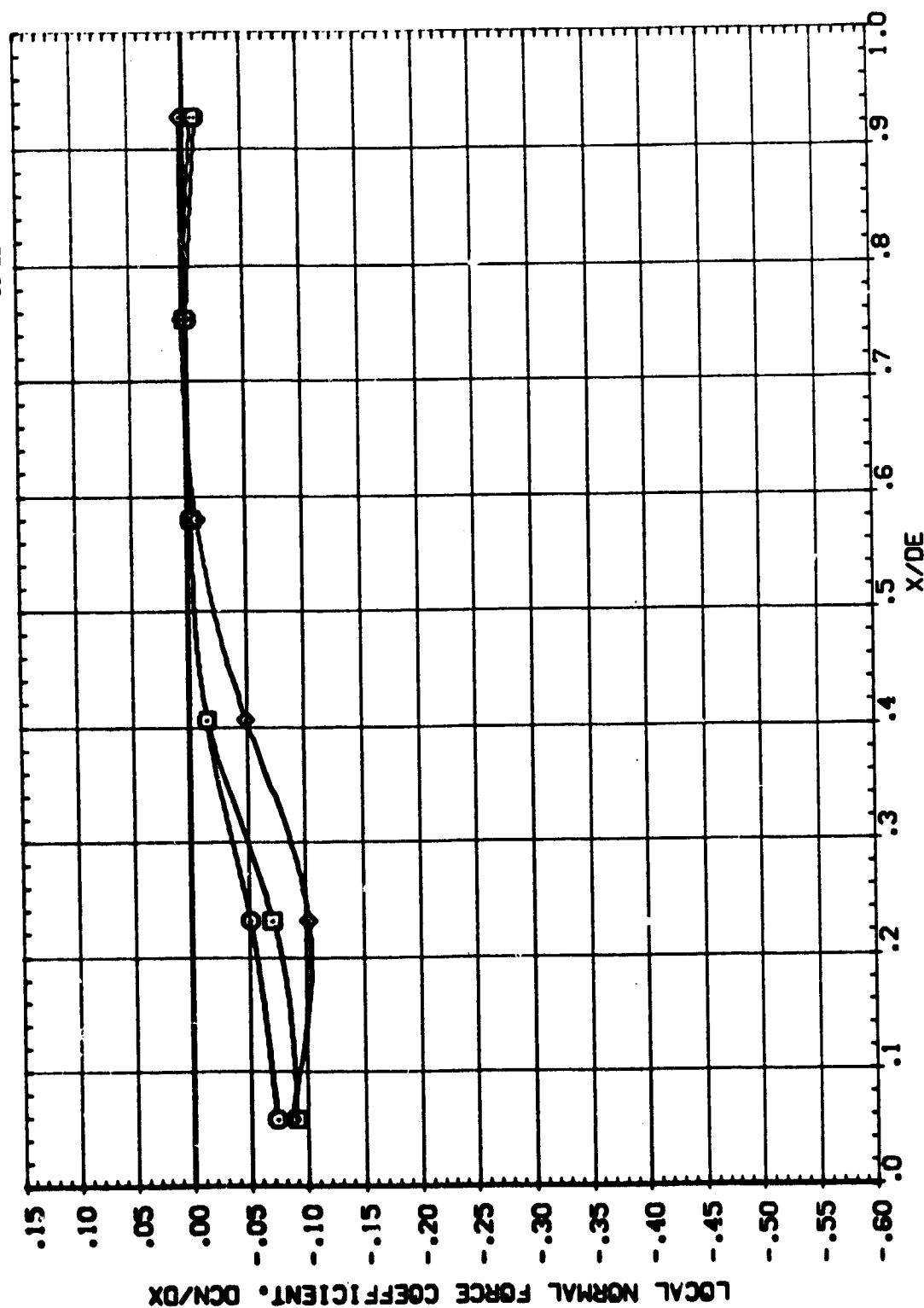
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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF002)

SYMB.	BETA	ALPHA	PARAMETRIC VALUES	REF. INFORMATION
○	-6.000	.000	POWER	SREF 49.4000
□	.000	11.000	GY1	LREF 50.7000
◇	6.000	.000	GY2	SREF 50.7000
			GY3	158.0000
				TRAP .0000
				TRAP .0000
				SCALE .0150
				SCALE .0150



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

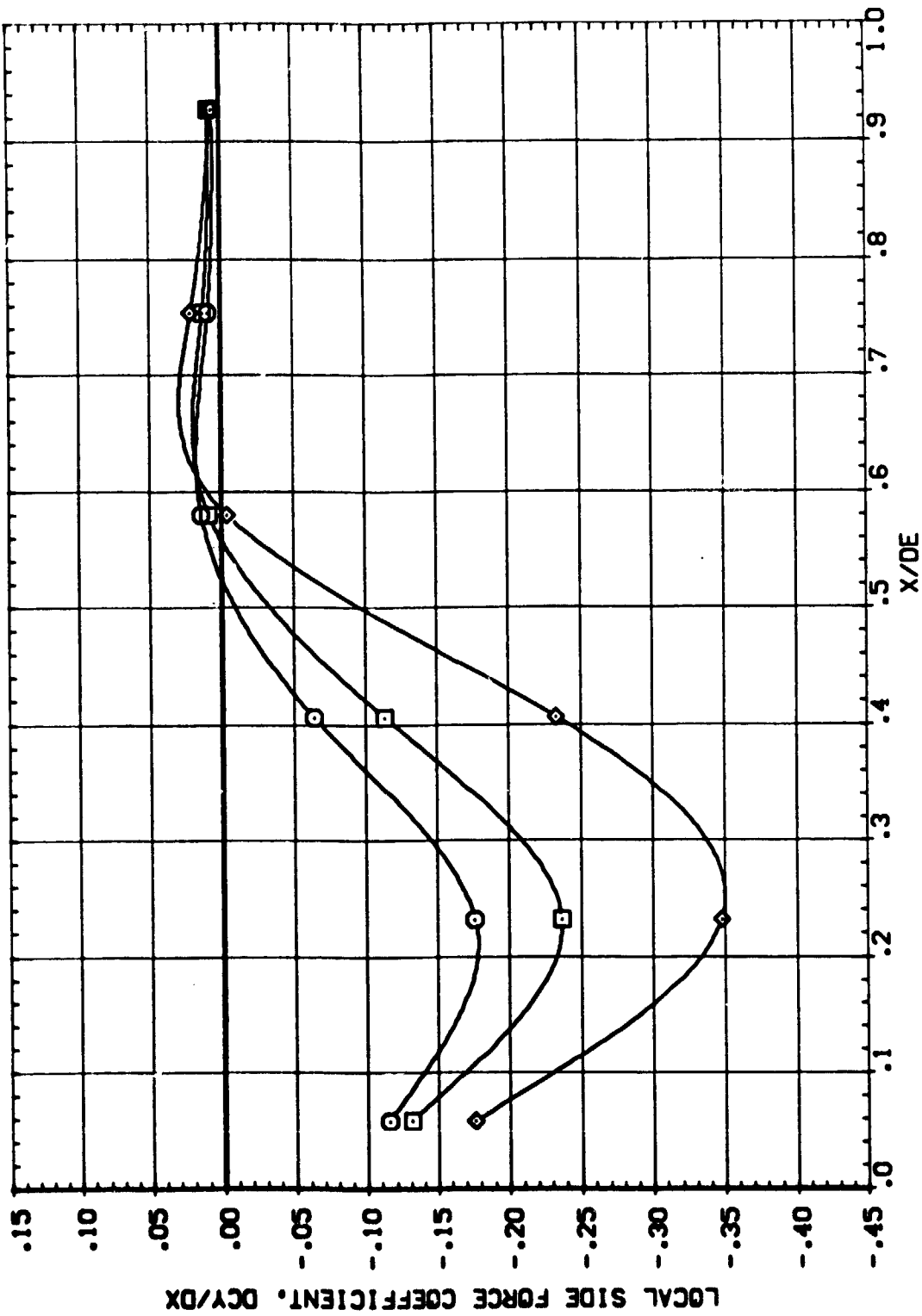
(A)MACH = .90

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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.(AUF002)

SYMBOL	BETA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	GP1	GP2	GP3	ALPHA	POWER	POW	SREF	LREF	50.FT.
○	6.000	.000	.000	GP1	.000	.000	49.4000	90.7000	INCHES
□	.000	.000	.000	GP2	11.000	GY1	90.7000	90.7000	INCHES
◇	.000	.000	.000	GP3	.000	GY2	156.0000	.0000	INCHES
						GY3	YMRP	ZMRP	INCHES
							SCALE		SCALE
							.0150		.0150

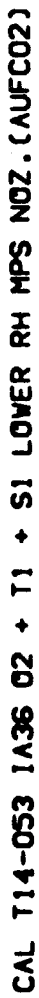


PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

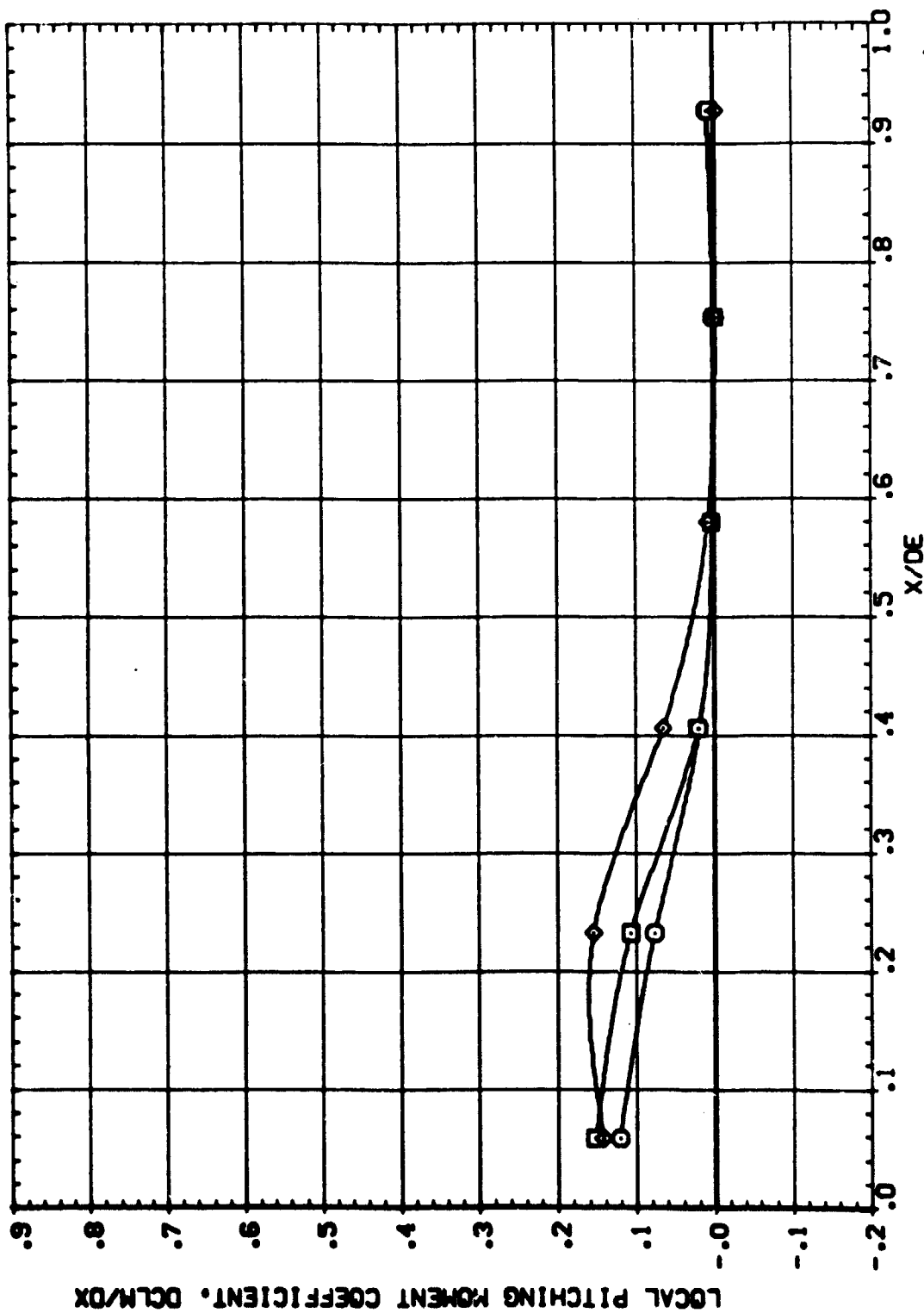
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MEYTA	ALPHA	PARAMETRIC VALUES
-6.000	POWER	.000
.000	G1	11.000
6.000	G2	.000
	G3	.000

SREF	49.4000	50.FT.
LREF	50.7000	INCHES
BREF	50.7000	INCHES
XREF	158.0000	INCHES
YREF	.0000	INCHES
ZREF	.0000	INCHES
	.0150	SCALE



# PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

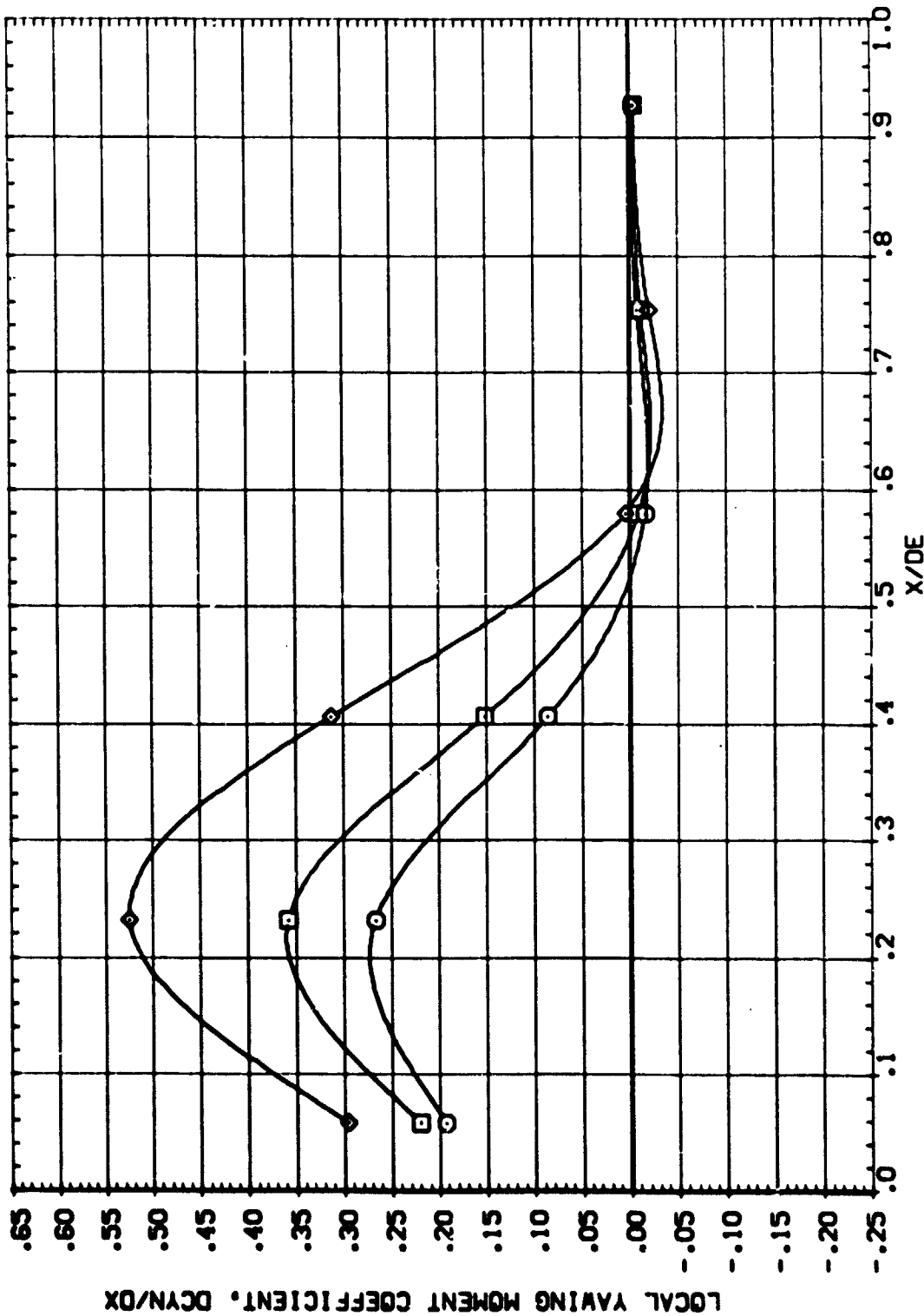
$$(A)_{MACH} = .90$$

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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.(AUF002)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES	POWER	REFERENCE INFORMATION
□	-6.000	GP1	.000	.000	SREF 49.4000
□	.000	GP2	11.000	-9.000	LREF 90.7000
◇	6.000	GP3	.000	-9.000	BREF 90.7000
			.000	.000	XREF 158.0000
			.000	.000	YREF .0000
			.000	.000	ZREF .0000
			.000	.000	SCALE .0190



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

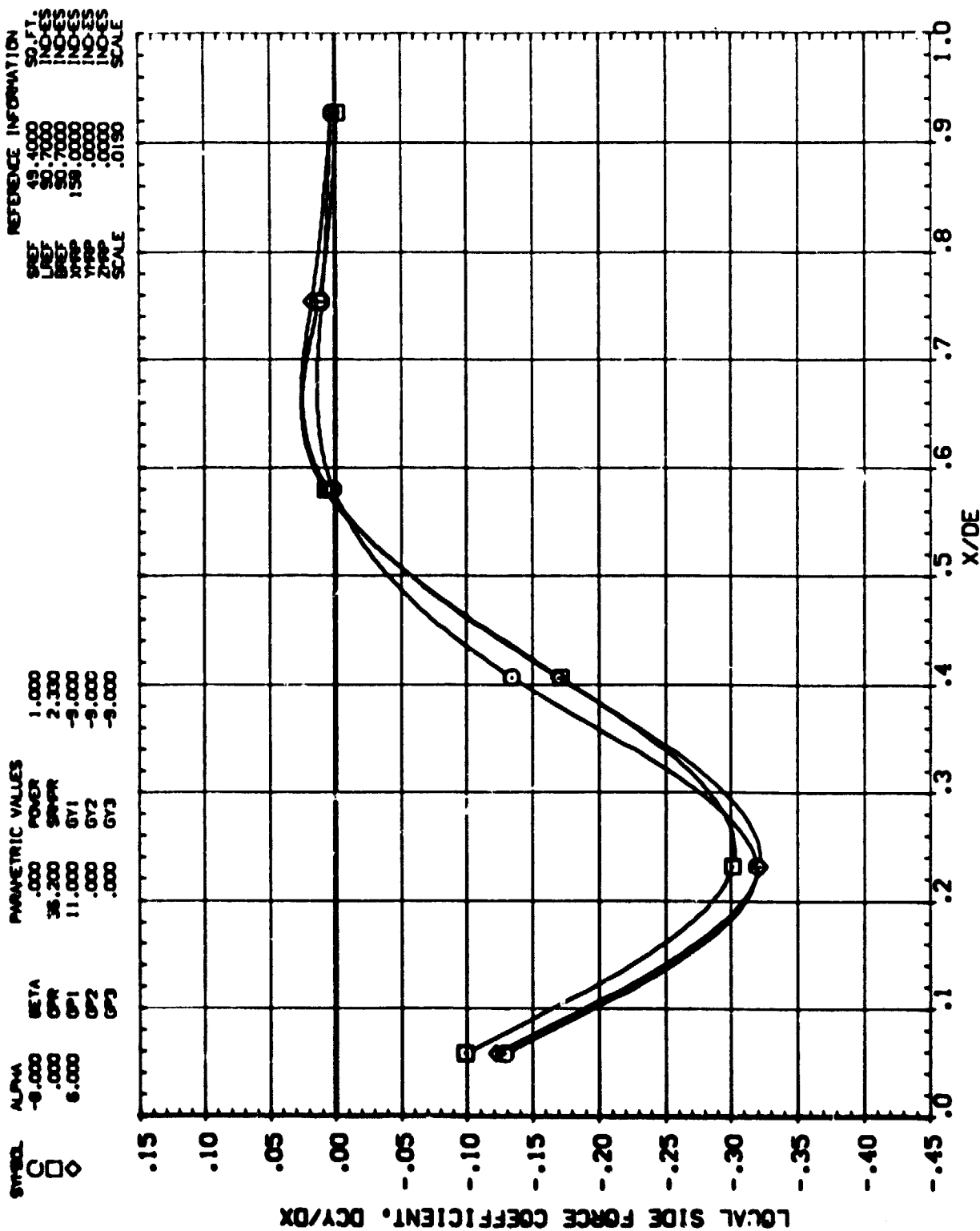
PAGE

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[illegible]

REFERENCE INFORMATION	
SREF	49.4000 SO.FT.
LREF	90.7000 INOES
BREF	90.7000 INOES
XREF	159.0000 INOES
YREF	0.0000 INOES
ZREF	0.0000 INOES
	SCALE .0150



# PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

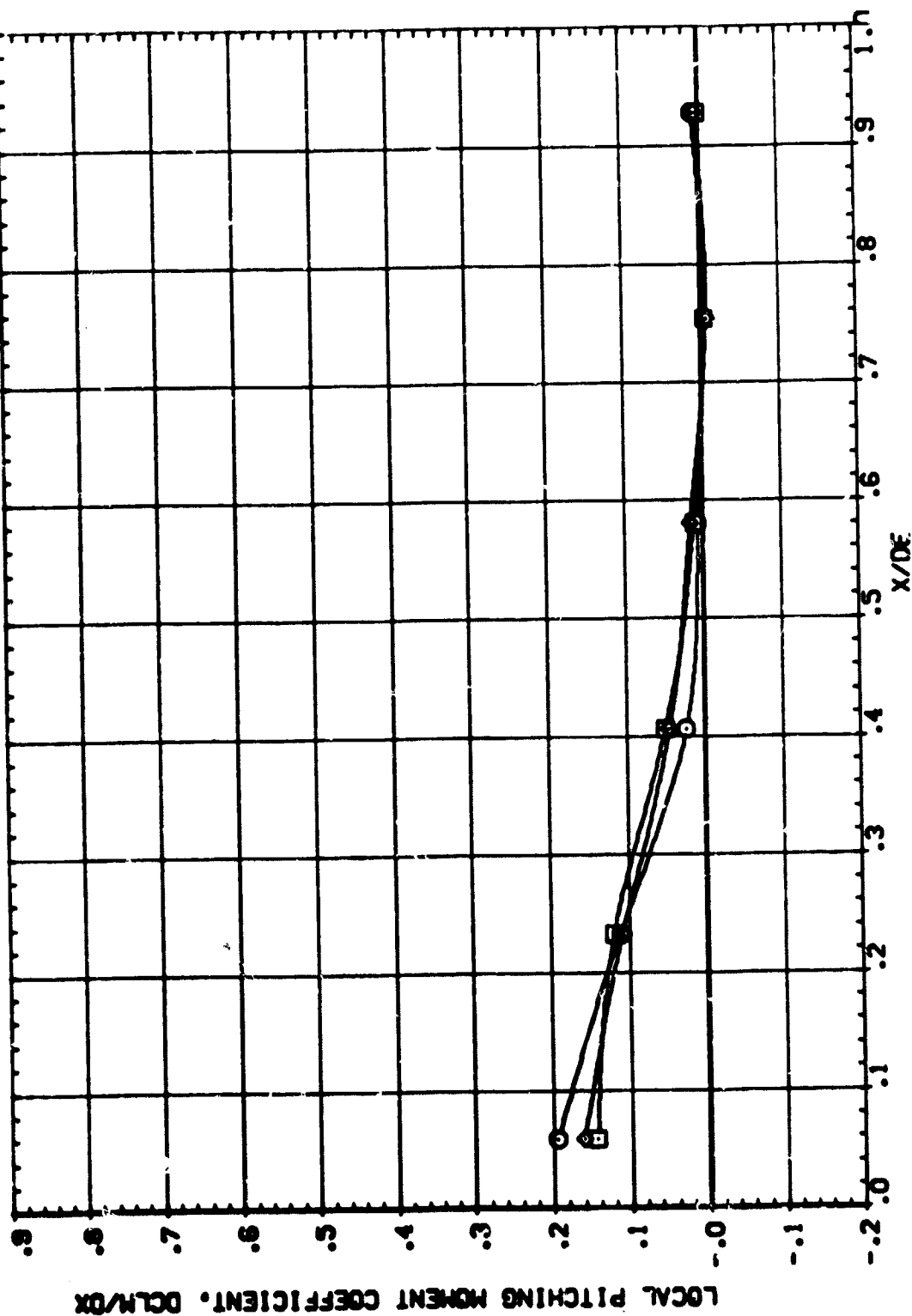
**(A)MACH = .90**

362



CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF003)

SPED.	ALPHA	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION		
000	-8.000	0P1	.000	PO-02	1.000	SPED	48.4000	50. FT.
	.000	0P2	26.200	SPWR	2.300	WGT	20.7000	INCHES
	6.000	0P3	11.000	GY1	-9.000	SPED	20.7000	INCHES
			.000	GY2	-9.000	WGT	158.0000	INCHES
			.000	GY3	-9.000	SPED	20.7000	INCHES
						WGT	158.0000	INCHES
						SCALE	.0150	SCALE



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

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CAL T14-053 1A36 02 + T1 + 31 LOWER RH MPS NOZ. (AUFC03)

SYMBOL

○	◇
---	---

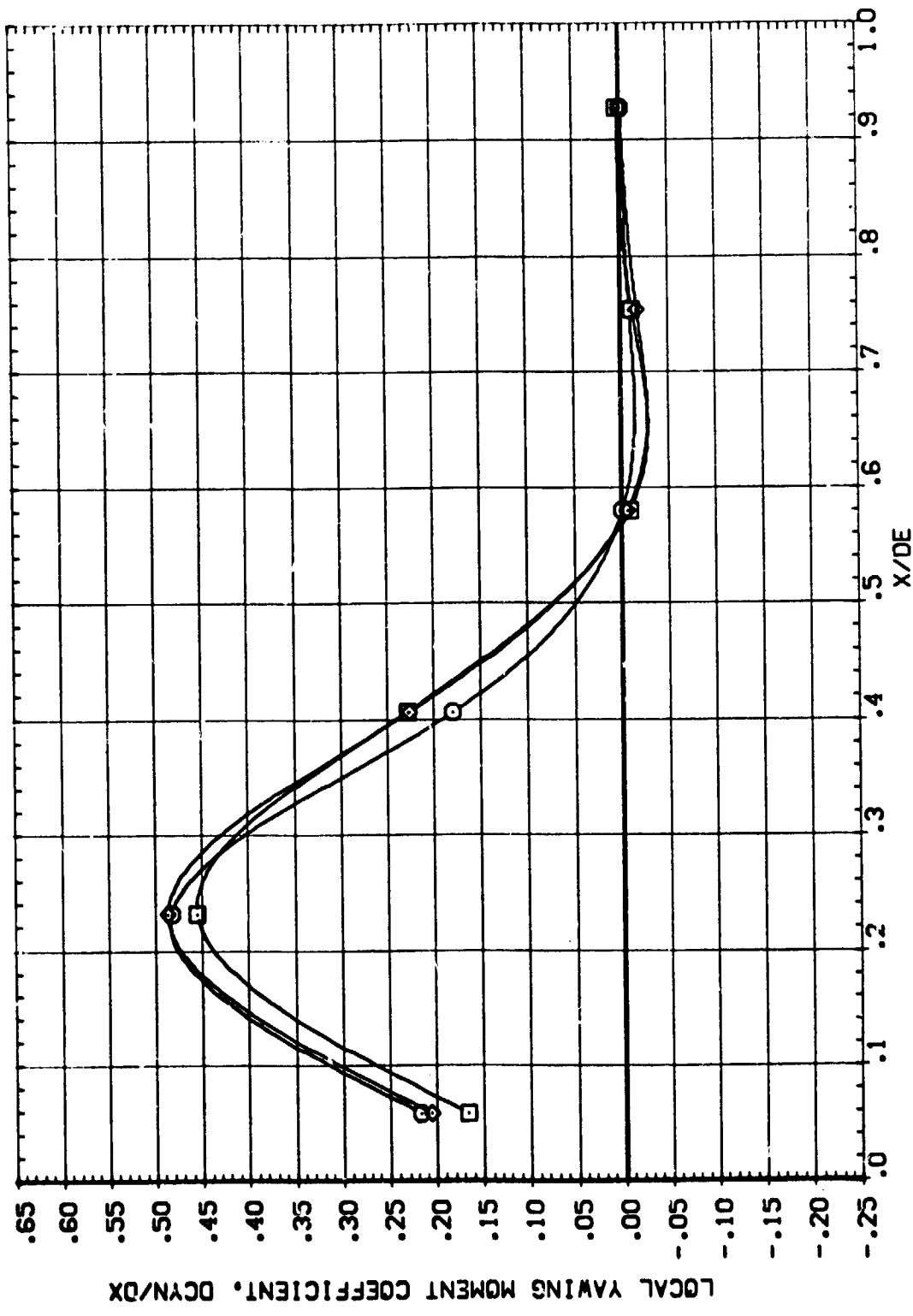
ALPHA

-8.000	.000	.000	1.000
.000	36.200	SRPR	2.330
6.000	11.000	GV1	-9.000
	.000	GV2	-9.000
	.000	GV3	-9.000

PARAMETRIC VALUES

REFERENCE INFORMATION

SREF	49.4000	50. FT.
LREF	90.7000	INCHES
BREF	90.7000	INCHES
YREF	158.0000	INCHES
ZREF	10.0000	INCHES
SCALE	.0190	SCALE

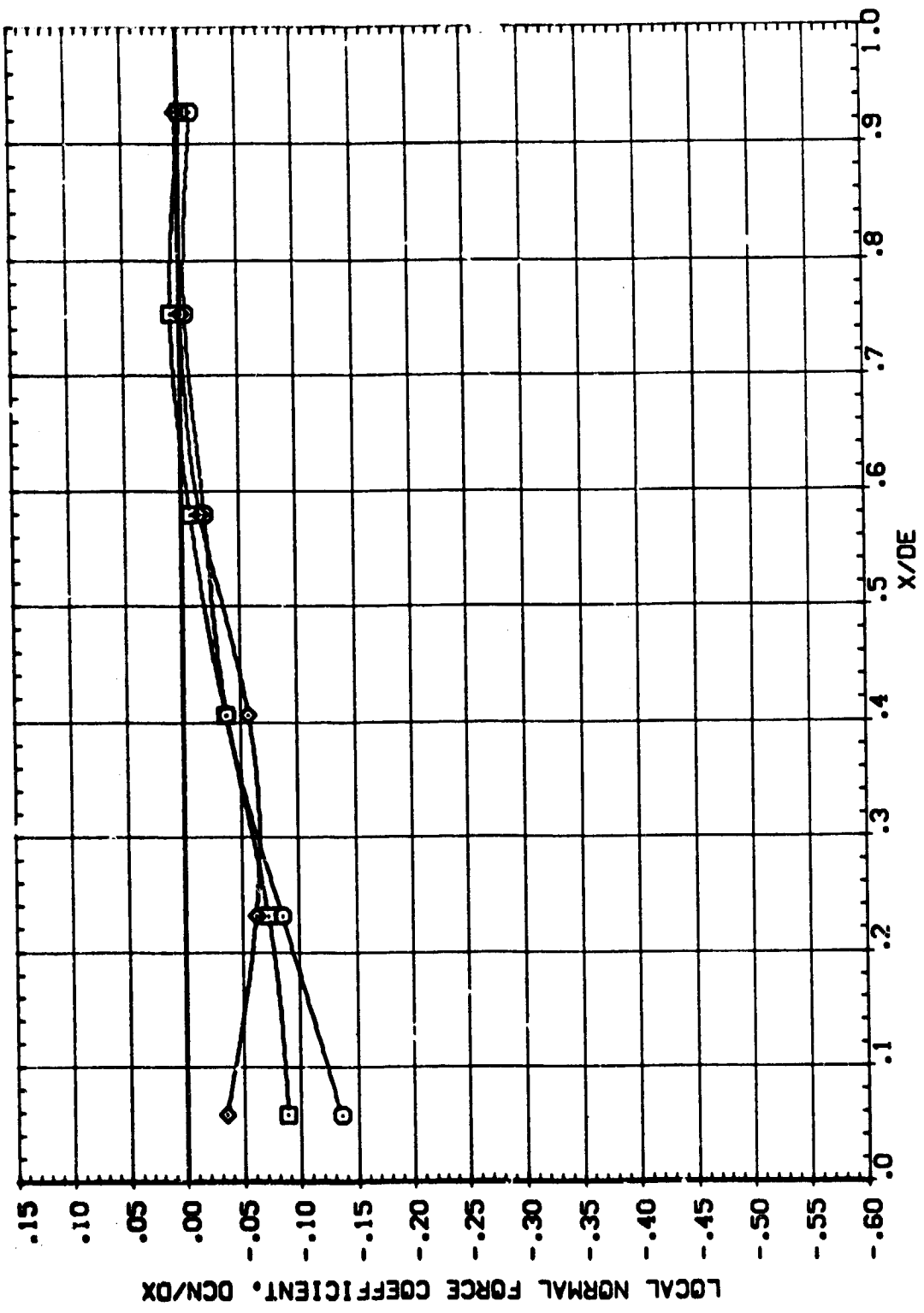


PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF004)

SYMBOL	BETA	PARAMETRIC VALUES			REFERENCE INFORMATION			
		ALPHA	POWER	1.000	SREF	49.4000	50.4000	50.4000
□	-6.000	GP4	36.200	SPR	LREF	90.7000	90.7000	90.7000
□	.000	GP1	11.000	GY1	SREF	90.7000	90.7000	90.7000
◇	6.000	GP2	.000	GY2	XREF	150.0000	150.0000	150.0000
		GP3	.000	GY3	YREF	.0000	.0000	.0000
					ZREF	.0000	.0000	.0000
					SCALE	.0150	.0150	.0150



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

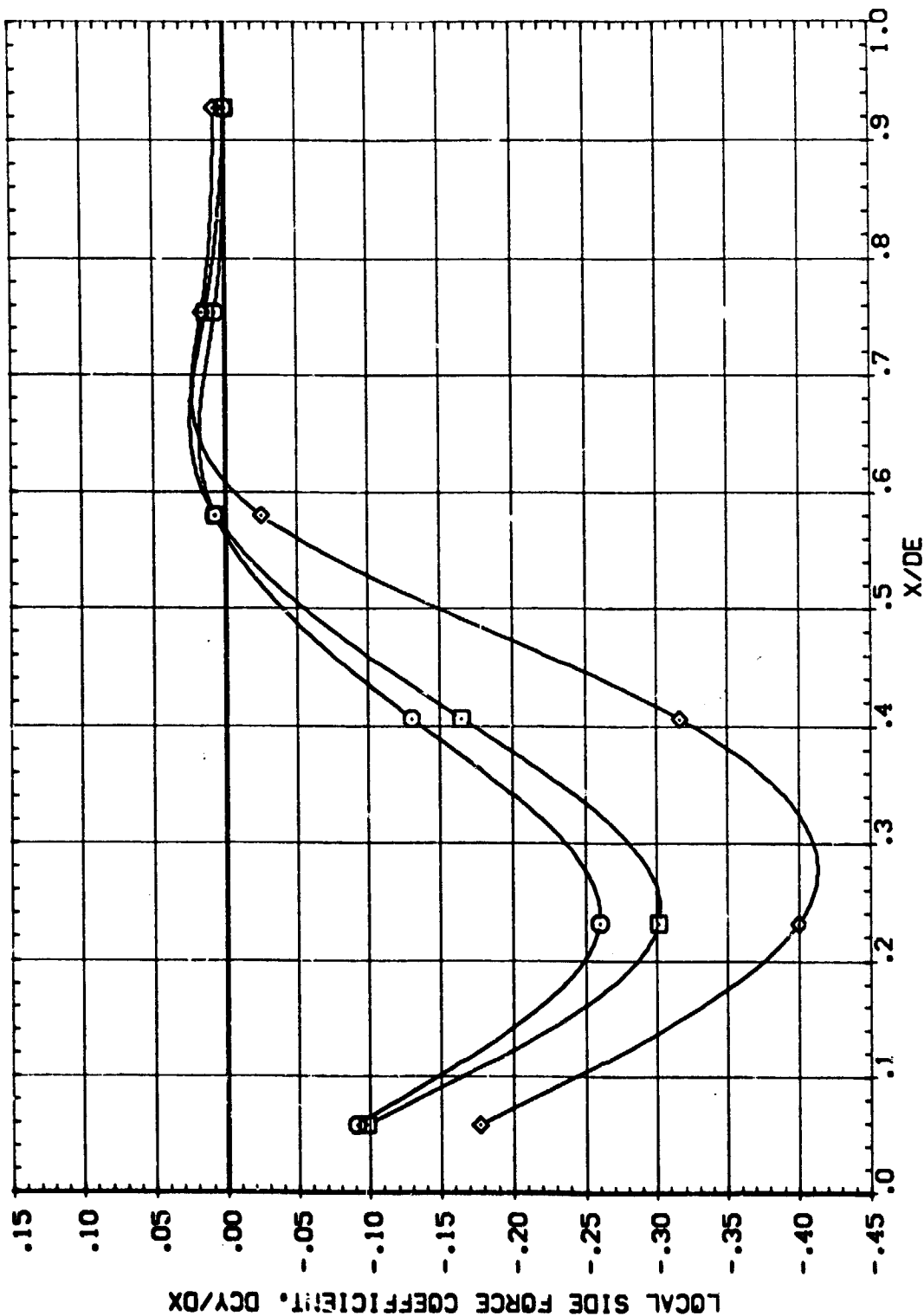
(AJMACH = .90

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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC04)

SYMBOL	BETA			ALPHA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	GP1	GP2	GP3	GP1	GP2	GP3	GP1	GP2	GP3	SREF	LREF	BREF
○	-6.000	.000	6.000	.000	.000	.000	.000	.000	.000	49.4000	50.7000	50.7000
□	.000	.000	.000	.000	.000	.000	.000	.000	.000	50.7000	50.7000	50.7000
◇	.000	.000	.000	.000	.000	.000	.000	.000	.000	158.0000	.0000	.0000
										YPRP	ZPRP	SCALE
										.0190	.0000	.0000



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

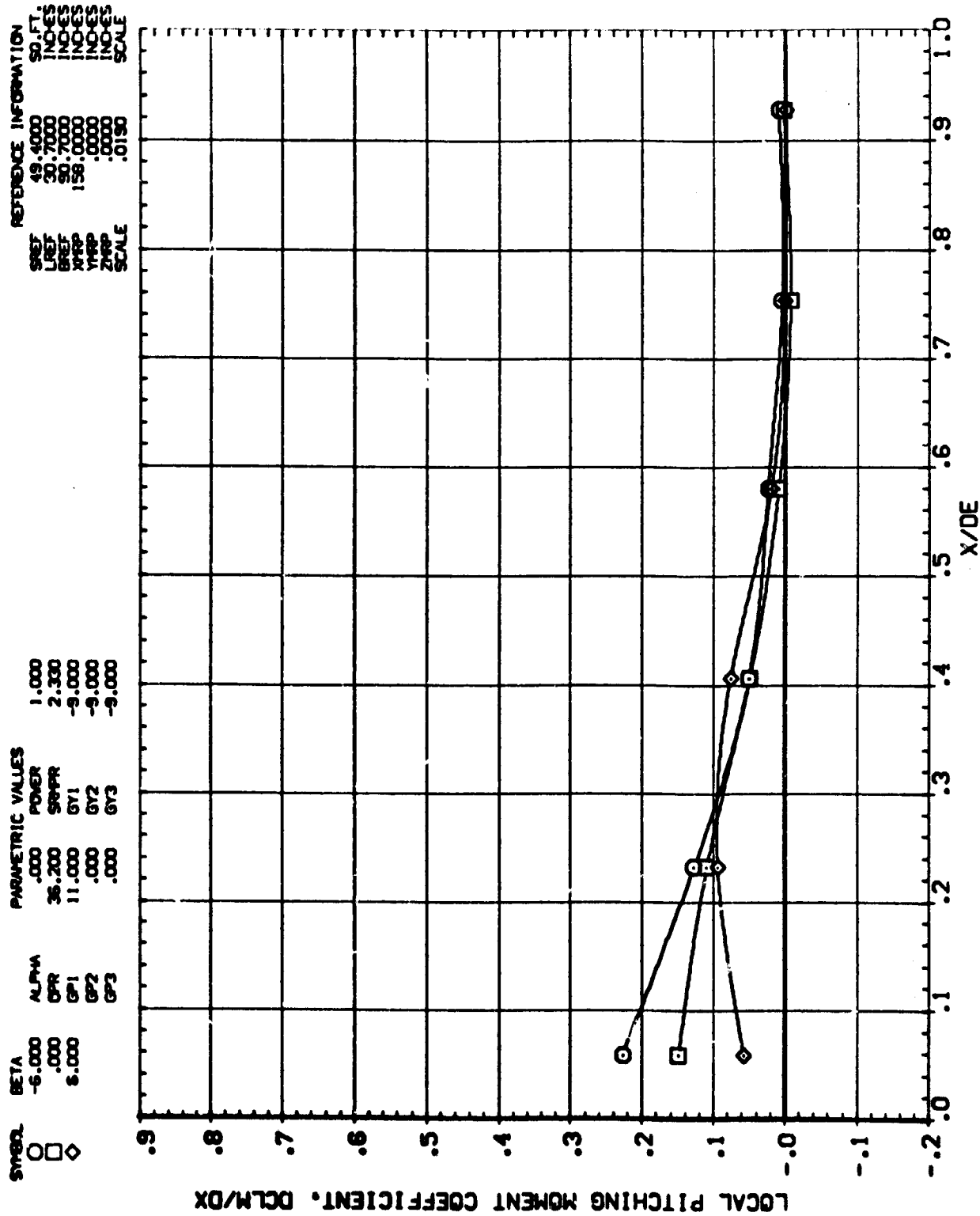
(A)MACH = .90

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365



CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC04)



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

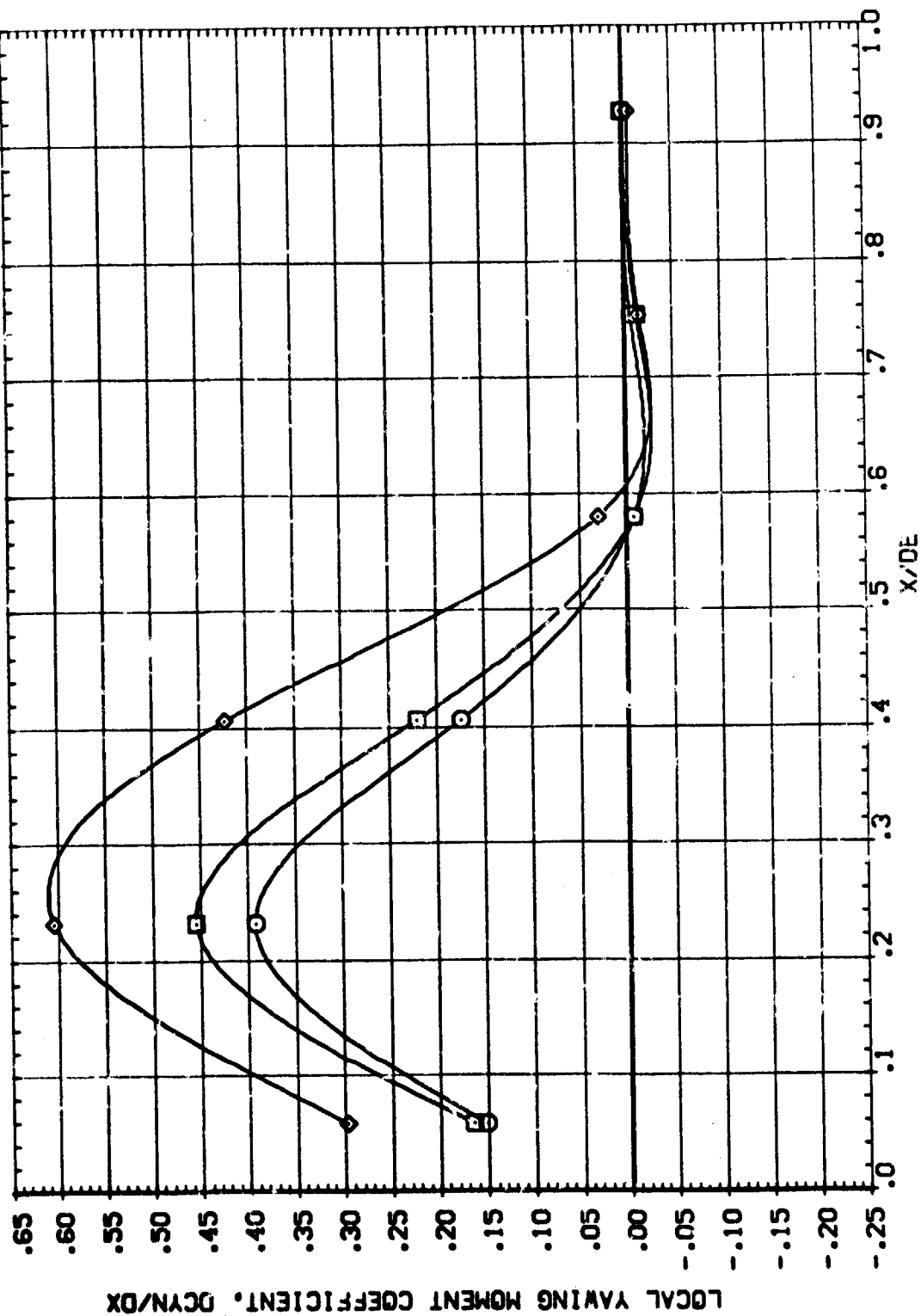
(A)MACH = .90

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367

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF004)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	BETA	ALPHA	POWER	SREF	49.4000	50.4000
□	-6.000	.000	1.000	LREF	90.7000	90.7000
◇	.000	36.200	2.300	BREF	50.7000	50.7000
	6.000	11.000	-9.000	XMRP	158.0000	158.0000
		.000	-9.000	YMRP	.0000	.0000
		.000	-9.000	ZMRP	.0000	.0000
				SCALE	.0150	.0150



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = .90

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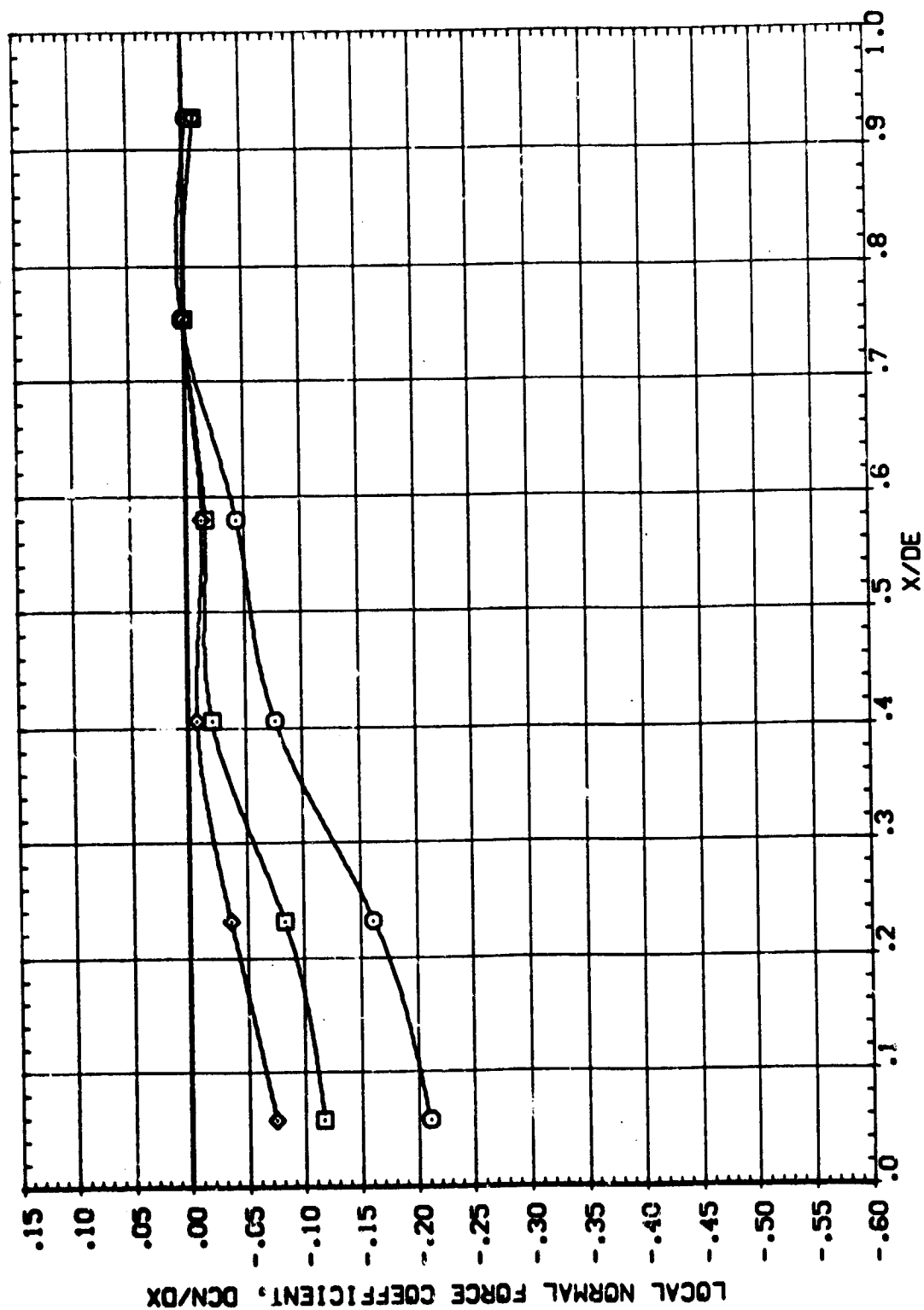
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ॐ नमो भगवते वासुदेवाय ॥

REFERENCE INFORMATION	
SREF	3.4000 SO.FT.
LREF	90.7000 INCHES
BREF	90.7000 INCHES
XREF	198.0000 INCHES
YREF	.0000 INCHES
ZREF	.0000 INCHES
SCALE	.0190 SCALE



# PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

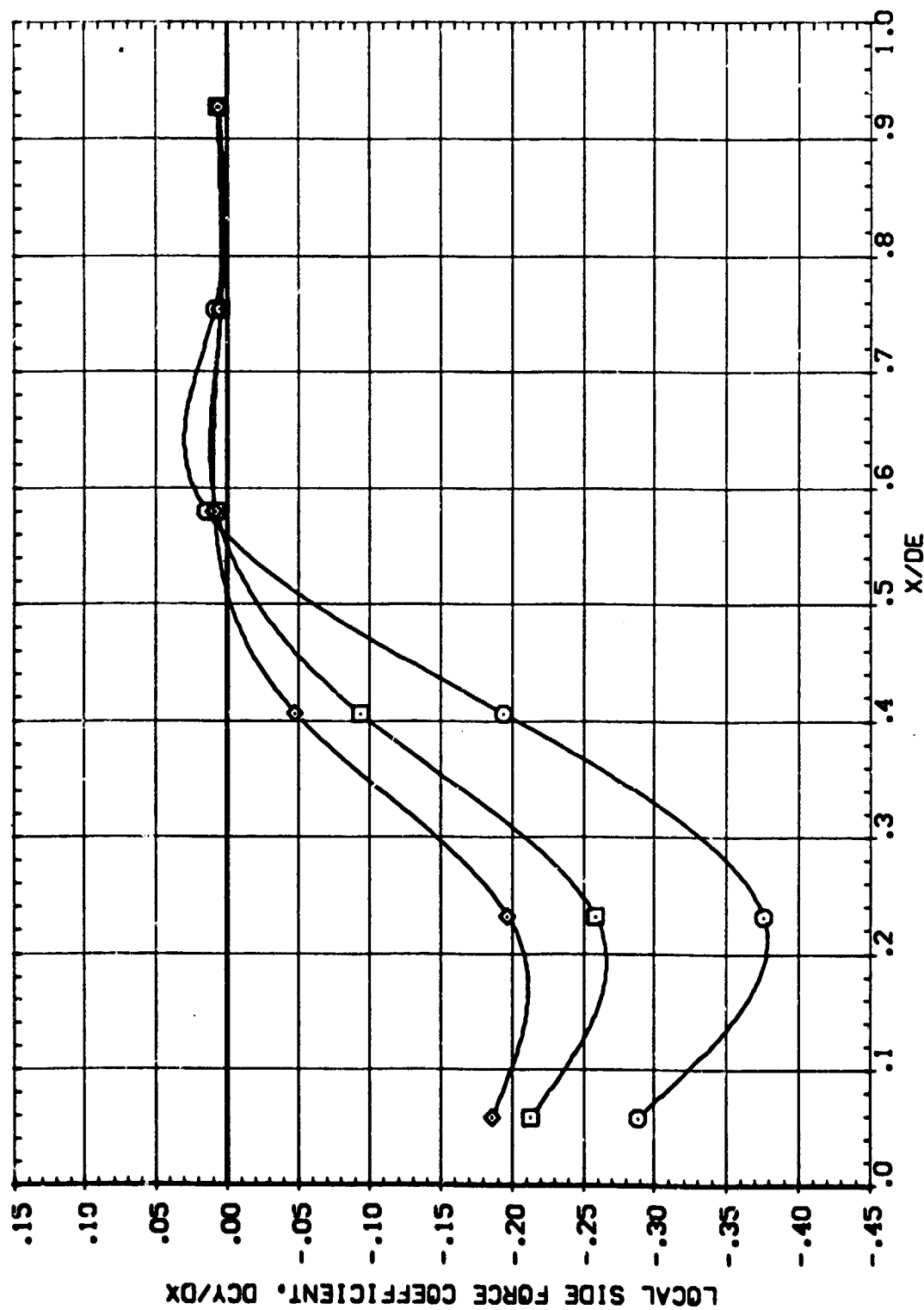
$$\{A\}_{MACH} = 1.20$$

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CAL T14-053 IA36 02 + T1 + S1 LOWER RH MPS NOZ.(AUF005)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-8.000	GP1	.000 POWER	SREF 49.4000
□	.000	GP2	11.000 GY1	LREF 90.7000
◇	6.000	GP3	.000 GY2	SREF 90.7000
			-9.000 GY3	XRRP 198.0000
			.000	YRRP .0000
			.000	ZRRP .0000
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PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

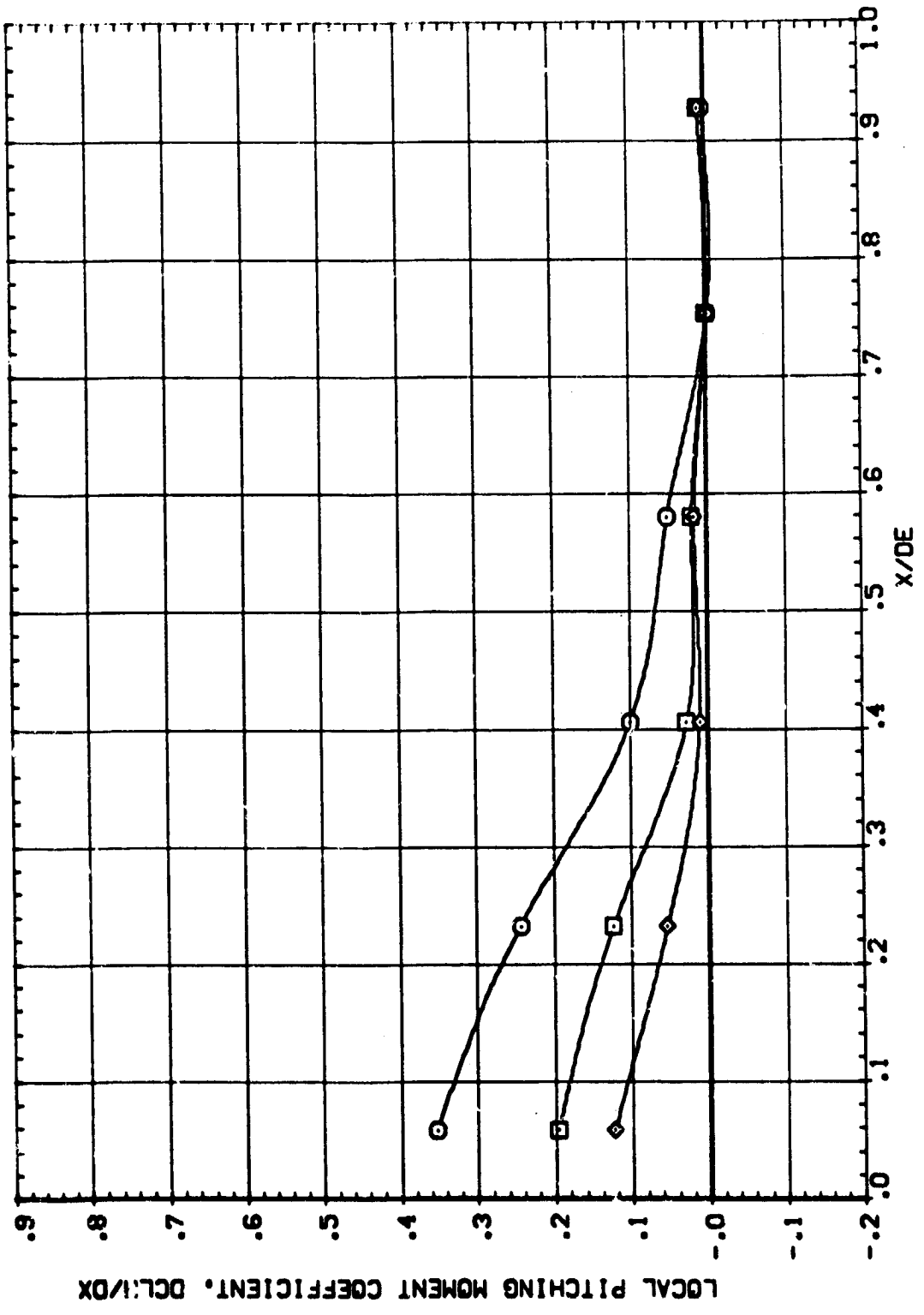
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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC05)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION				
	ALPHA	BETA	POWER	SREF	48.4000	50.4000	50.4000	50.4000
□	-8.000	.000	.000	LREF	50.7000	50.7000	50.7000	50.7000
◇	.000	11.000	-9.000	BREF	158.0000	158.0000	158.0000	158.0000
△	6.000	.000	-9.000	XHP	.0000	.0000	.0000	.0000
		GP2	GP2	YHP	.0000	.0000	.0000	.0000
		GP3	GP3	ZHP	.0000	.0000	.0000	.0000
				SCALE	.0190	.0190	.0190	.0190



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

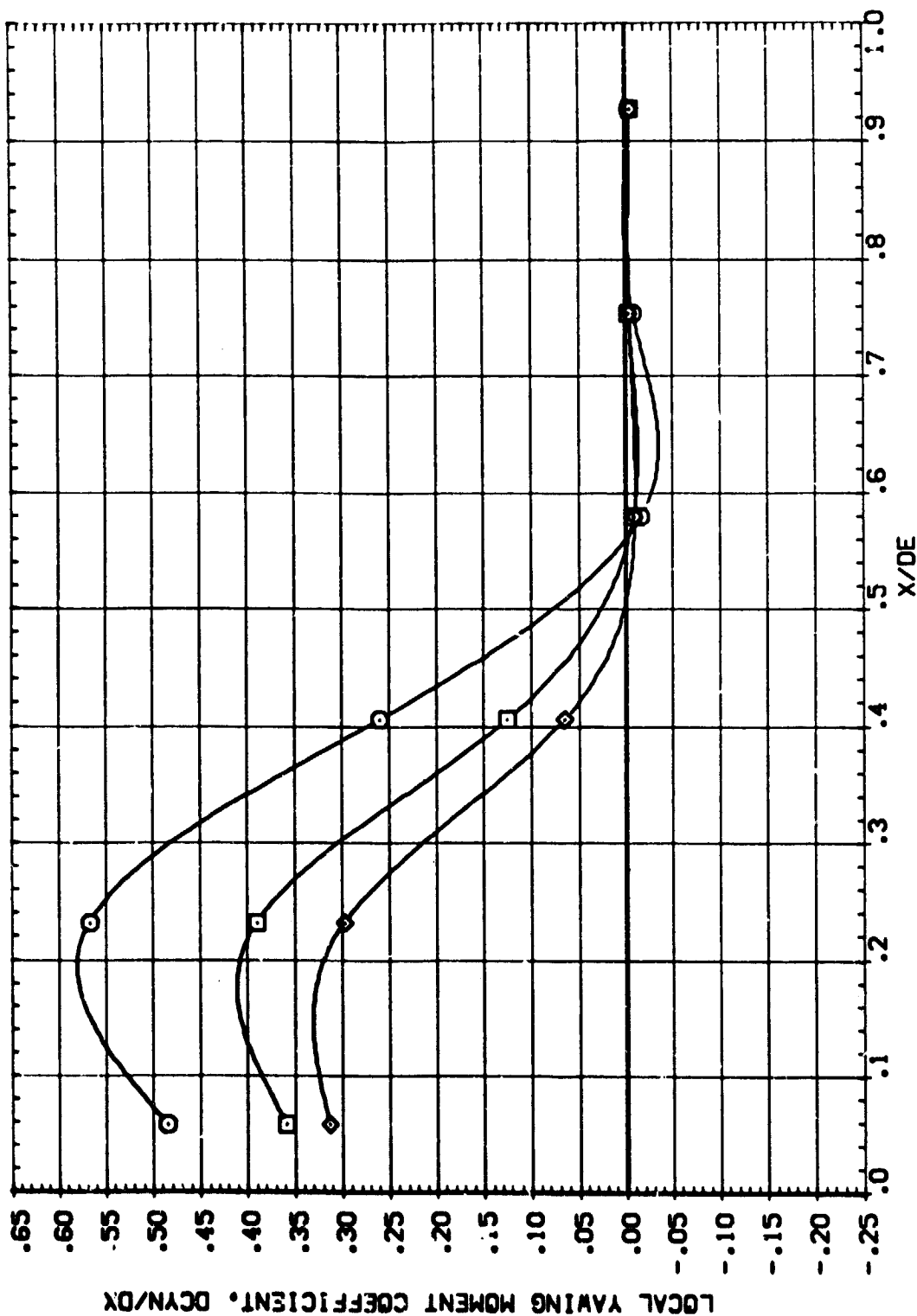
(A)MACH = 1.20

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CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.(AUF005)

SYMBOL	ALPHA	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
○	-8.000		.000 POWER	49.4000 SQ.FT.
□	.000	GP1	11.000 GY1	90.7000 INCHES
◇	6.000	GP2	.000 GY2	90.7000 INCHES
		GP3	.000 GY3	198.0000 INCHES
				.0000 INCHES
				.0000 INCHES
				.0190 SCALE



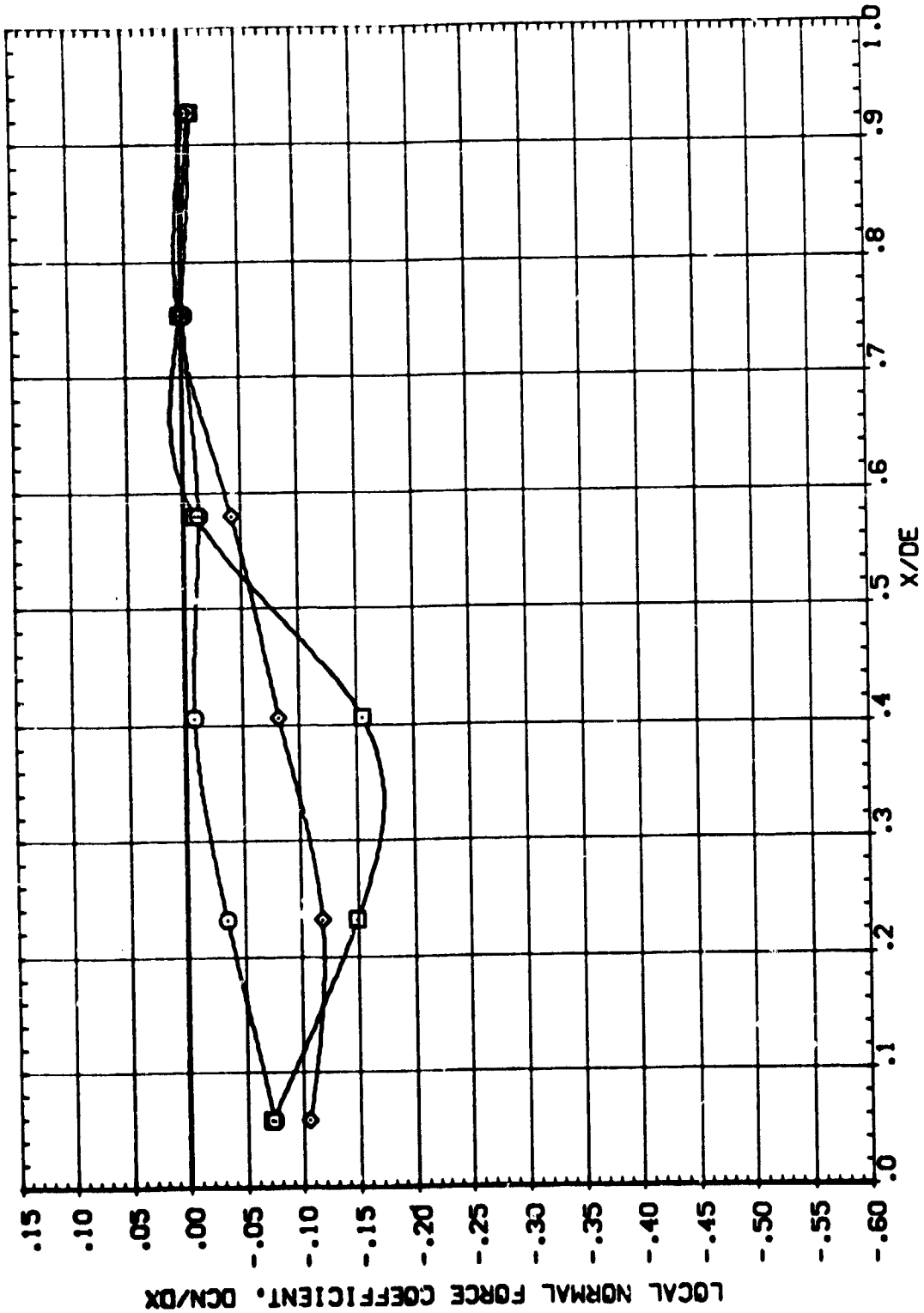
PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20



CAL T14-053 IA36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC06)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	49.4000	50.4000	50.4000
□	-6.000	.000	.000	LREF	50.7000	50.7000	50.7000
◇	.000	11.000	-9.000	BREF	50.7000	50.7000	50.7000
	6.000	.000	.000	XREF	158.0000	158.0000	158.0000
		.000	.000	YREF	.0000	.0000	.0000
		.000	.000	ZREF	.0000	.0000	.0000
				SCALE	.0150	.0150	.0150

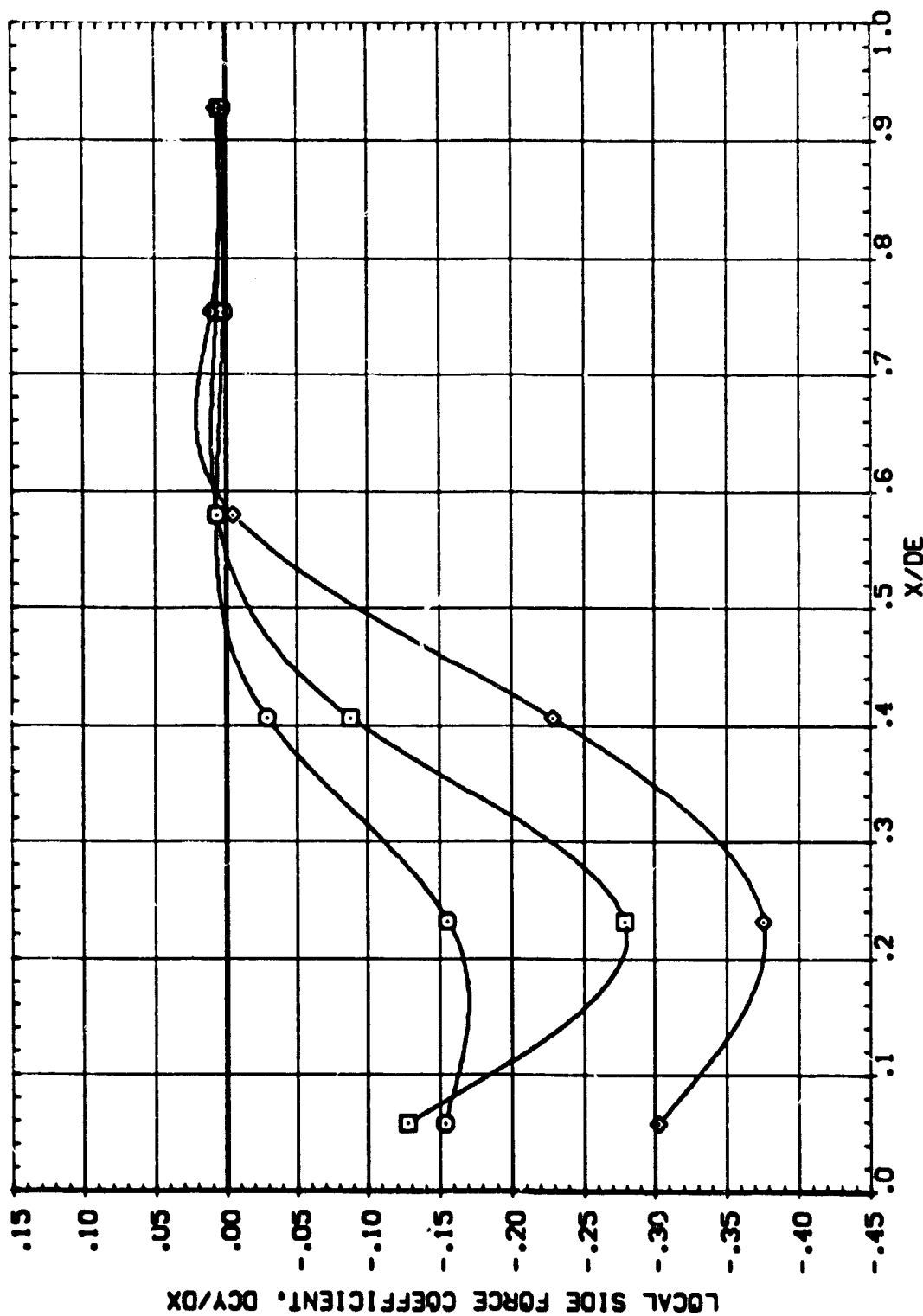


PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF06)

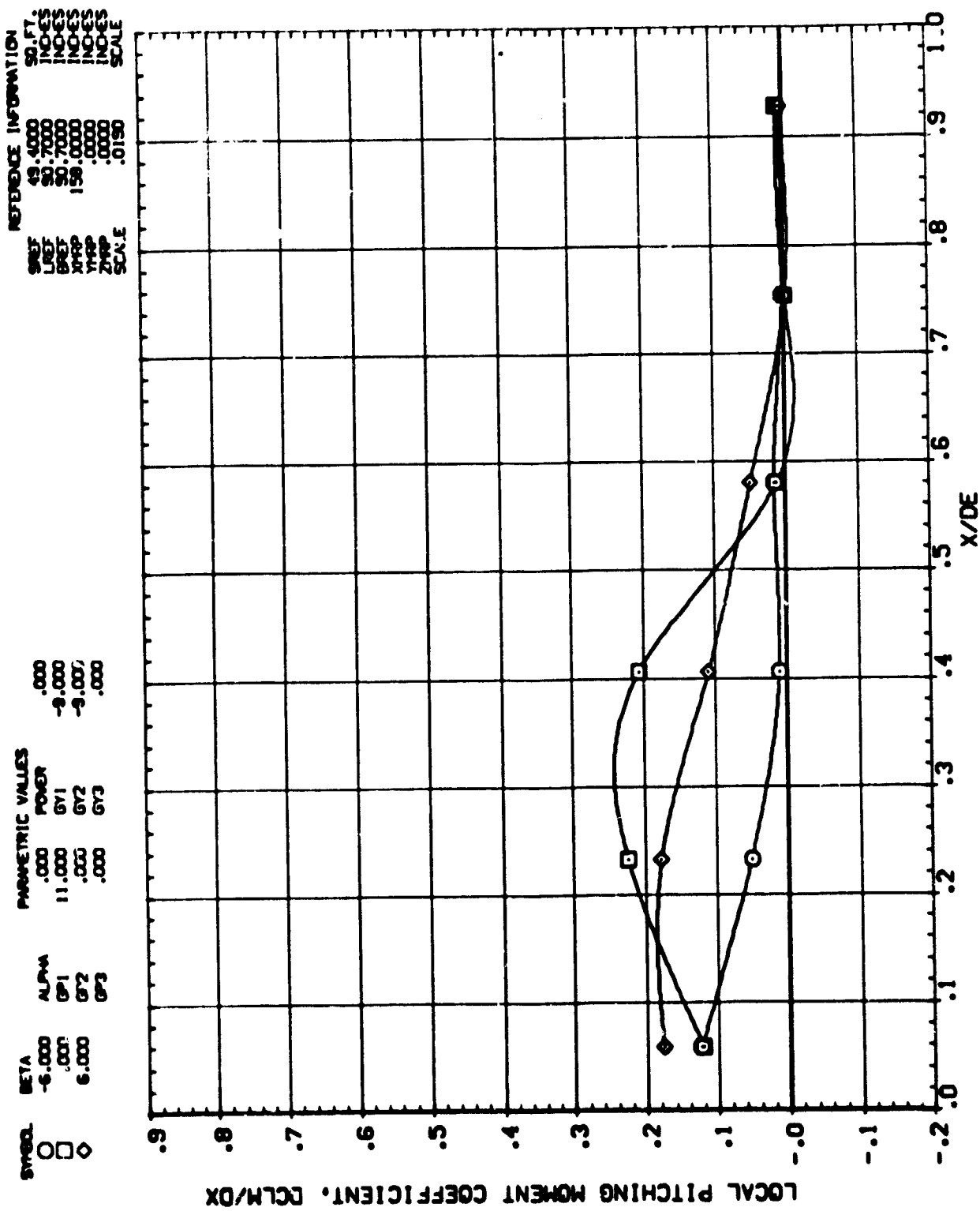
SYMBOL	BETA			ALPHA			PARAMETRIC VALUES			REFERENCE INFORMATION		
	GP1	GP2	GP3	GP1	GP2	GP3	GY1	GY2	GY3	SREF	49.4000	50.4000
□	6.000	0.000	0.000	0.000	0.000	0.000	11.000	0.000	0.000	LREF	30.7000	30.7000
◇	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BREF	90.7000	90.7000
										YREF	158.0000	158.0000
										ZREF	0.0000	0.0000
										YMRP	0.0000	0.0000
										ZMRP	0.0000	0.0000
										SCALE	0.0150	0.0150



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

SREF	49.4000	50.FT.
LREF	50.7000	IN-ES
BREF	50.7000	IN-ES
XREF	158.0000	IN-ES
YREF	.0000	IN-ES
ZREF	.0000	IN-ES
SCALE	.0150	SCALE



# PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

**[A]MACH = 1.20**

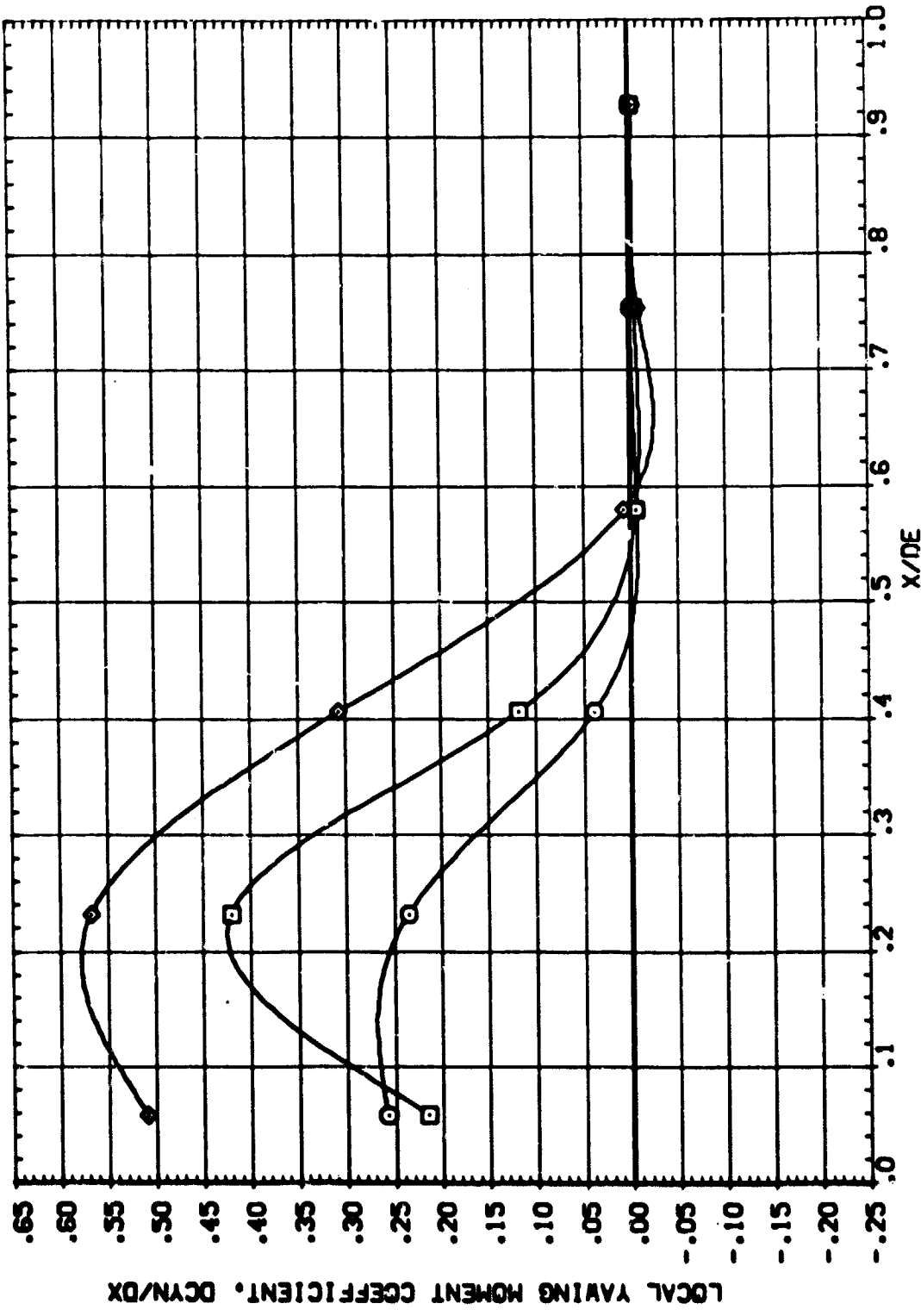
**PAGE**

375

==

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF006)

SYMB.	PARAMETRIC VALUES			REFERENCE INFORMATION		
	BETA	ALPHA	POWER	SREF	SO.FT.	SCALE
○	-6.000	.000	.000	49.4000	INCHES	.0190
□	.000	11.000	-9.000	50.7000	INCHES	
◇	6.000	.000	-9.000	158.0000	INCHES	
		.000	.000	YHPP	INCHES	
		.000	.000	ZHPP	INCHES	
				SCALE		



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

PAGE

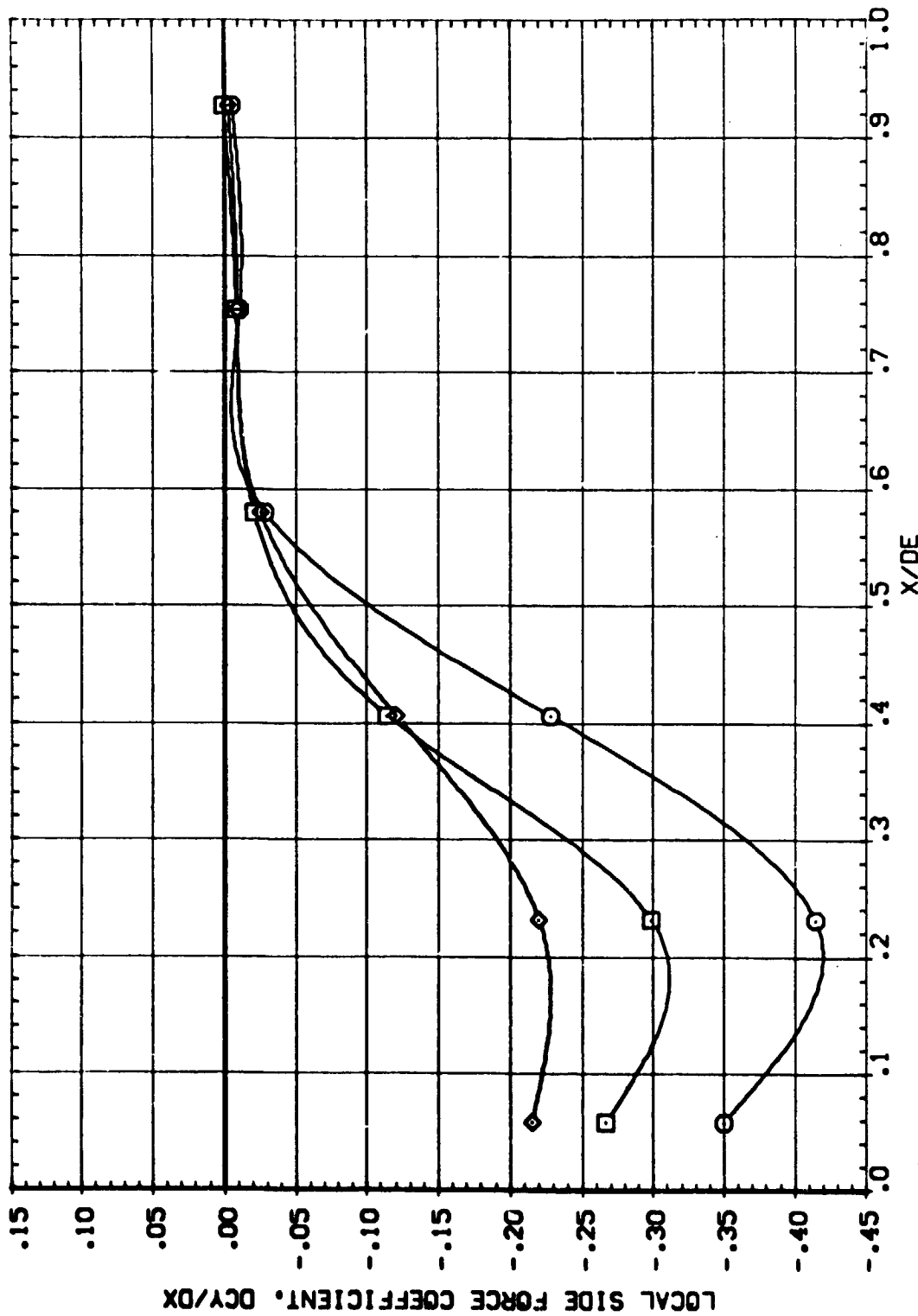
376





CAL T14-053 IA36 02 + T1 + S1 LOWER RH MPS NOZ.(AUFC07)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	ALPHA	BETA	POWER	SREF	49.4000	50.7000	SCALE
□	-8.000	0.000	28.310	LREF	90.7000	158.0000	.0190
◇	6.000	0.000	11.000	BREF	90.7000	158.0000	.0190
◇		GP1	GY1	XMRP	90.7000	158.0000	.0190
		GP2	GY2	YMRP	90.7000	158.0000	.0190
		GP3	GY3	ZMRP	90.7000	158.0000	.0190



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(AJMACH = 1.20)

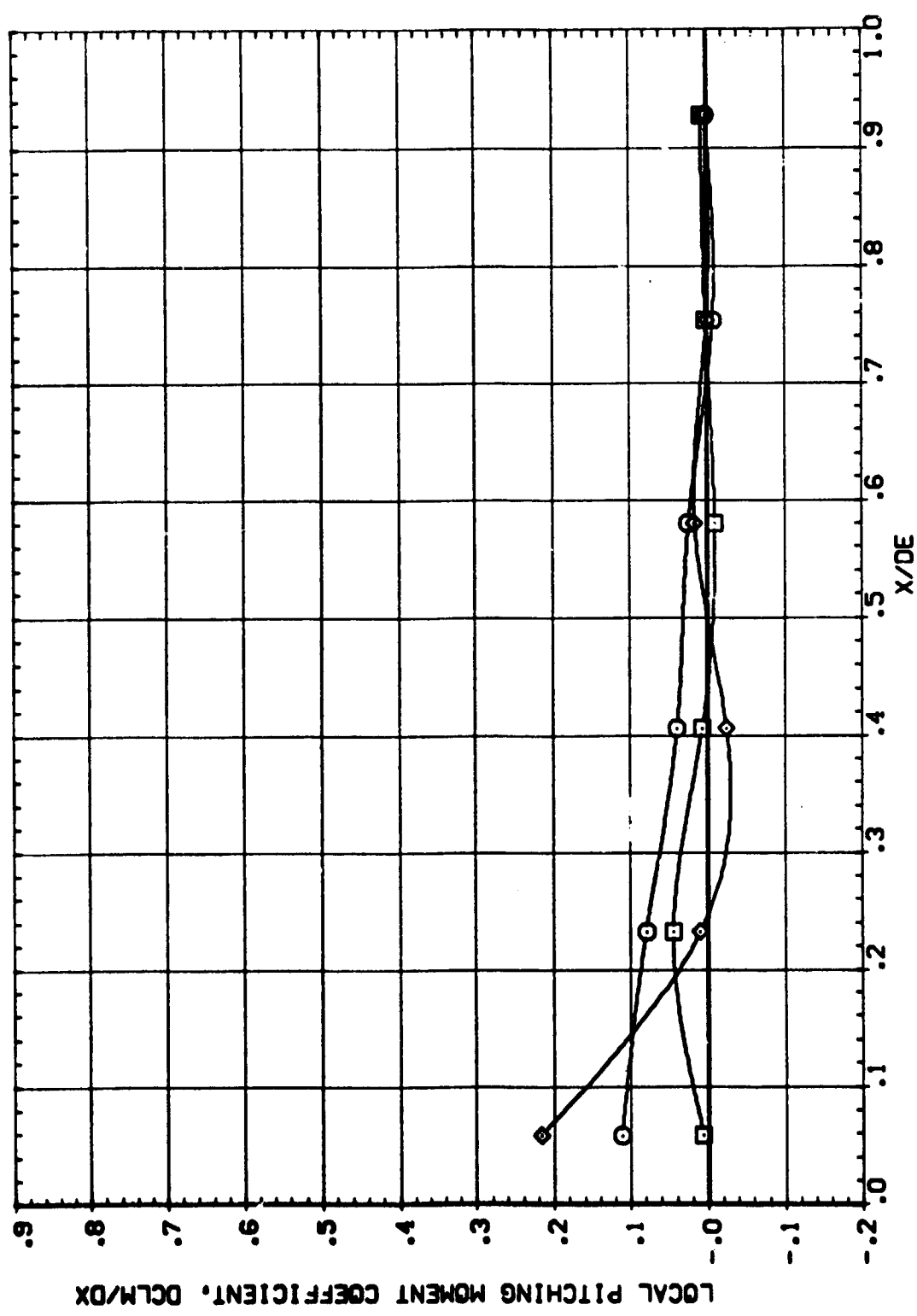
PAGE

378

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF007)

SYMBOL      REFERENCE INFORMATION

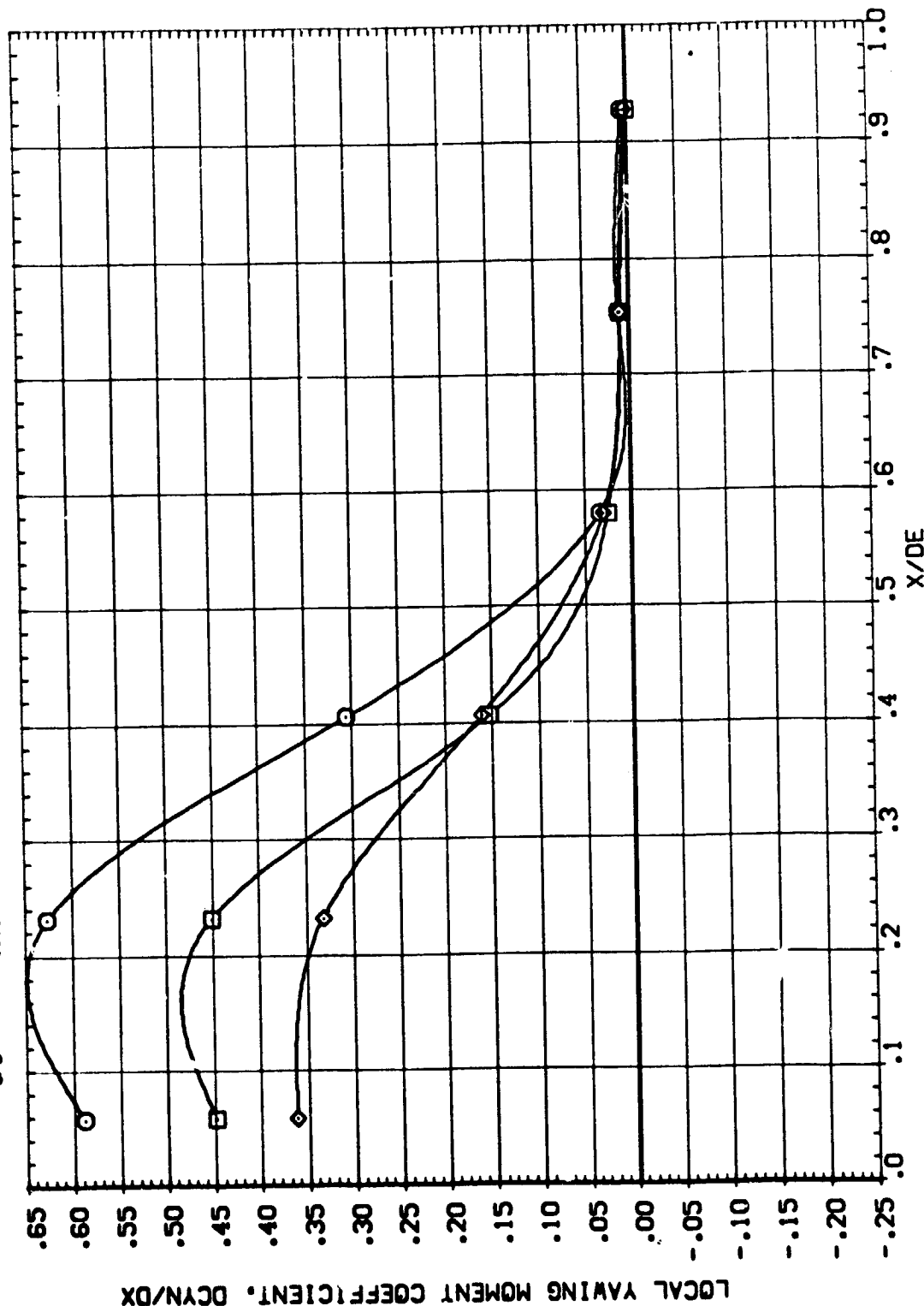
ALPHA	BETA	PARAMETRIC VALUES	SREF	49.4000	50.4000	50.4000
-8.000	.000	.000 POWER	LREF	50.7000	50.7000	50.7000
.000	6.000	28.310 SREF	BREF	50.7000	50.7000	50.7000
		11.000 GY1	YREF	158.0000	158.0000	158.0000
		.000 GY2	ZREF	.0000	.0000	.0000
		.000 GY3	SCALE	.0150	.0150	.0150



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF007)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION		
	ALPHA	BETA	POWER	SREF	49.4000	50.4000
○	-8.000	.000	.000	LREF	50.7000	50.7000
□	.000	28.310	2.020	BREF	50.7000	50.7000
◇	6.000	11.000	-9.000	XMRP	158.0000	158.0000
		GP1	GY1	YMRP	.0000	.0000
		GP2	GY2	ZMRP	.0000	.0000
		GP3	GY3	SCALE	.0190	.0190



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.20

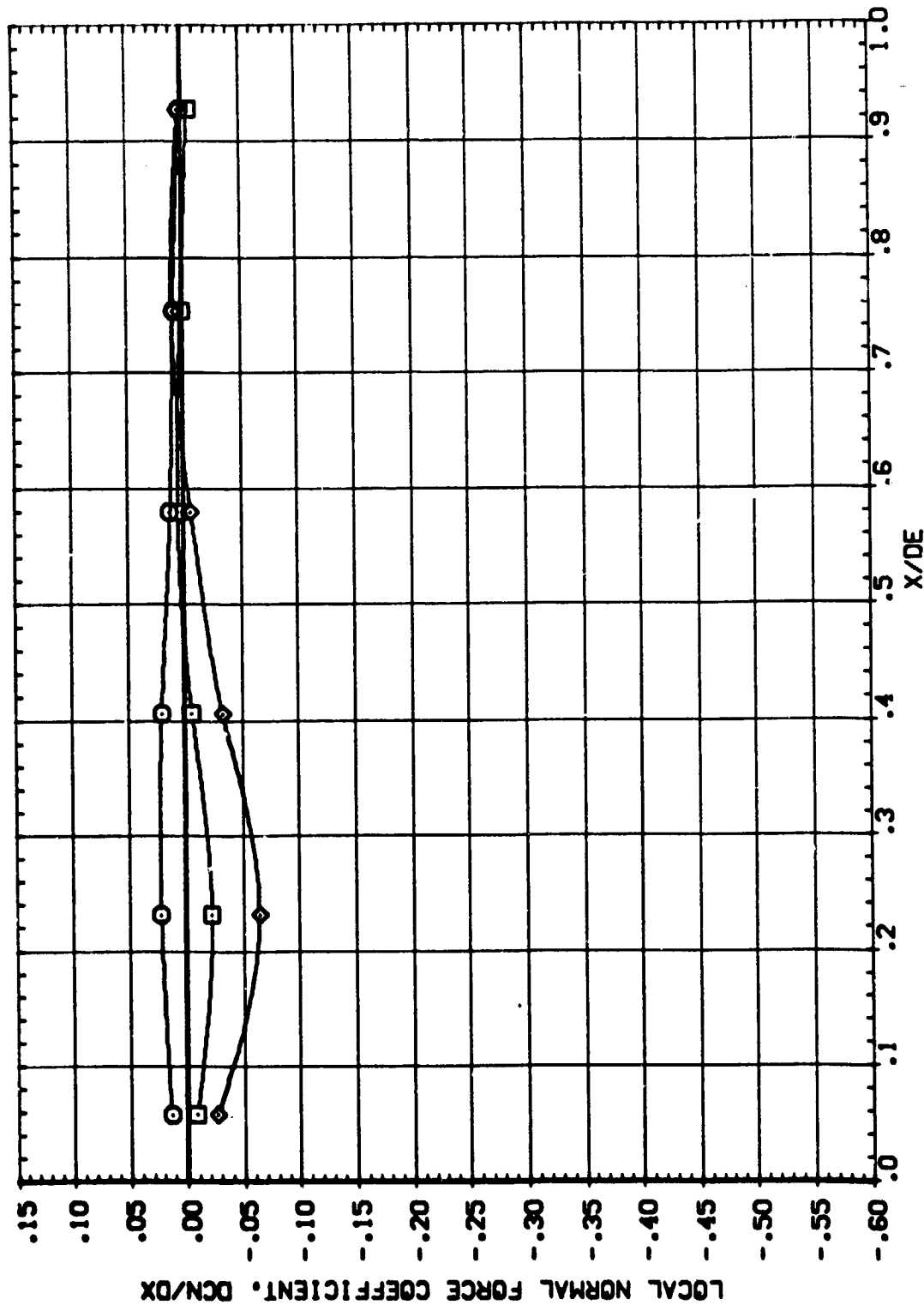
PAGE

380



CAL T14-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC08)

SYMBOL	PARAMETRIC VALUES			REFERENCE INFORMATION			
	BETA	ALPHA	POWER	SREF	48.4000	50.4000	50.4000
○	-6.000	0.000	1.000	LREF	50.7000	50.7000	50.7000
□	.000	28.310	2.020	BREF	50.7000	50.7000	50.7000
◇	6.000	11.000	-9.000	XREF	50.7000	50.7000	50.7000
		GP1	GP2	YREF	50.7000	50.7000	50.7000
		GP3	GP3	ZREF	50.7000	50.7000	50.7000
				SCALE	.0190	.0190	.0190



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.19

PAGE

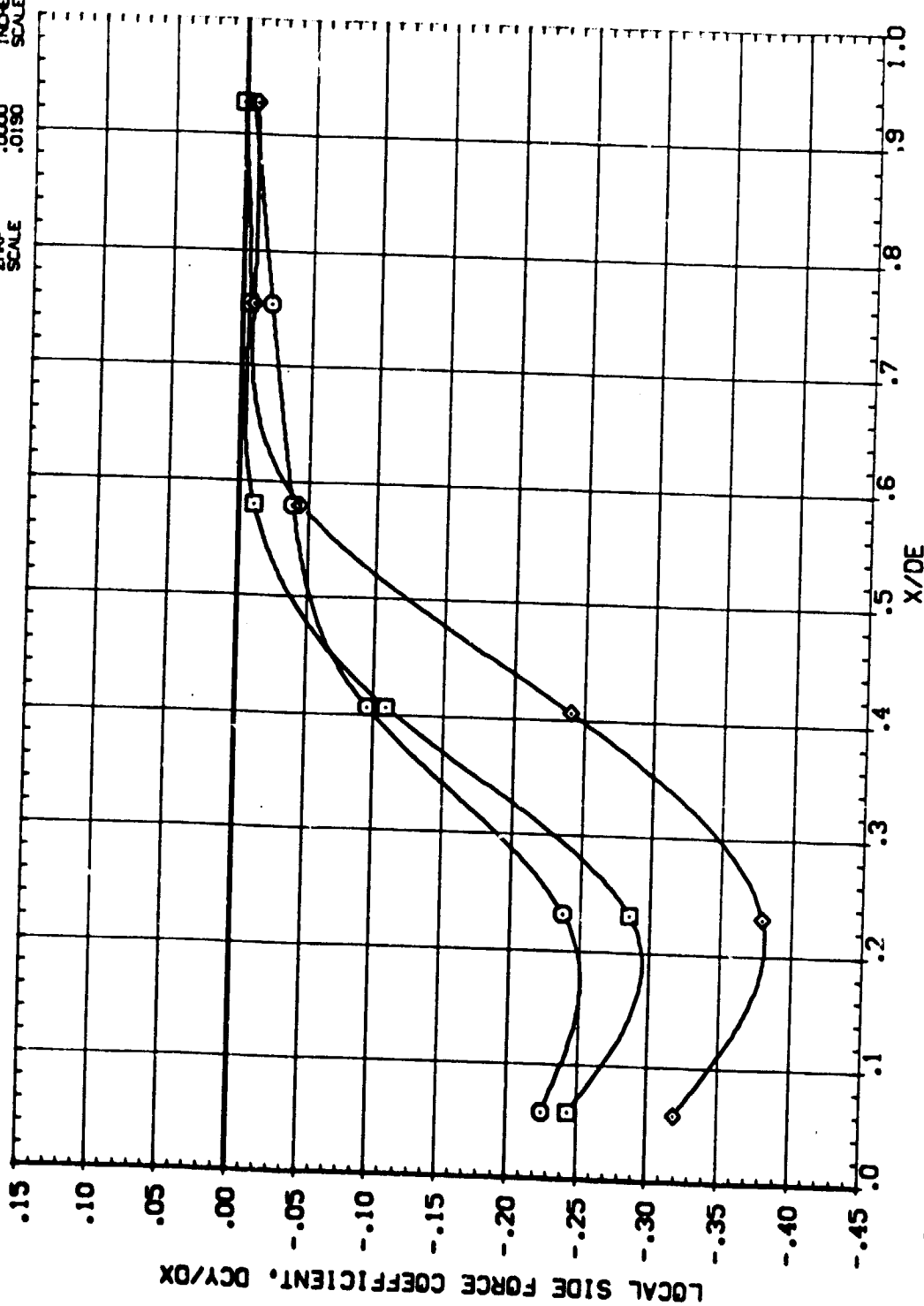
381

CAL T14-053 IA36 02 + T1 + S1 LOWER RH MPS NOZ. (AUF008)

SYMBOL BETA ALPHA  
 □ -6.000  
 ○ .000  
 ◇ 6.000

PARAMETRIC VALUES  
 .000 POWER 1.000  
 28.310 SHPR 2.000  
 11.000 GY1 -9.000  
 .000 GY2 -9.000  
 .000 GY3 -9.000

REFERENCE INFORMATION  
 SREF 49.4000 50. FT.  
 LREF 40.7000 INCHES  
 BREF 3.7000 INCHES  
 XREF 1.3. 0000 INCHES  
 YREF .0000 INCHES  
 ZREF .0000 INCHES  
 SCALE .0150 SCALE

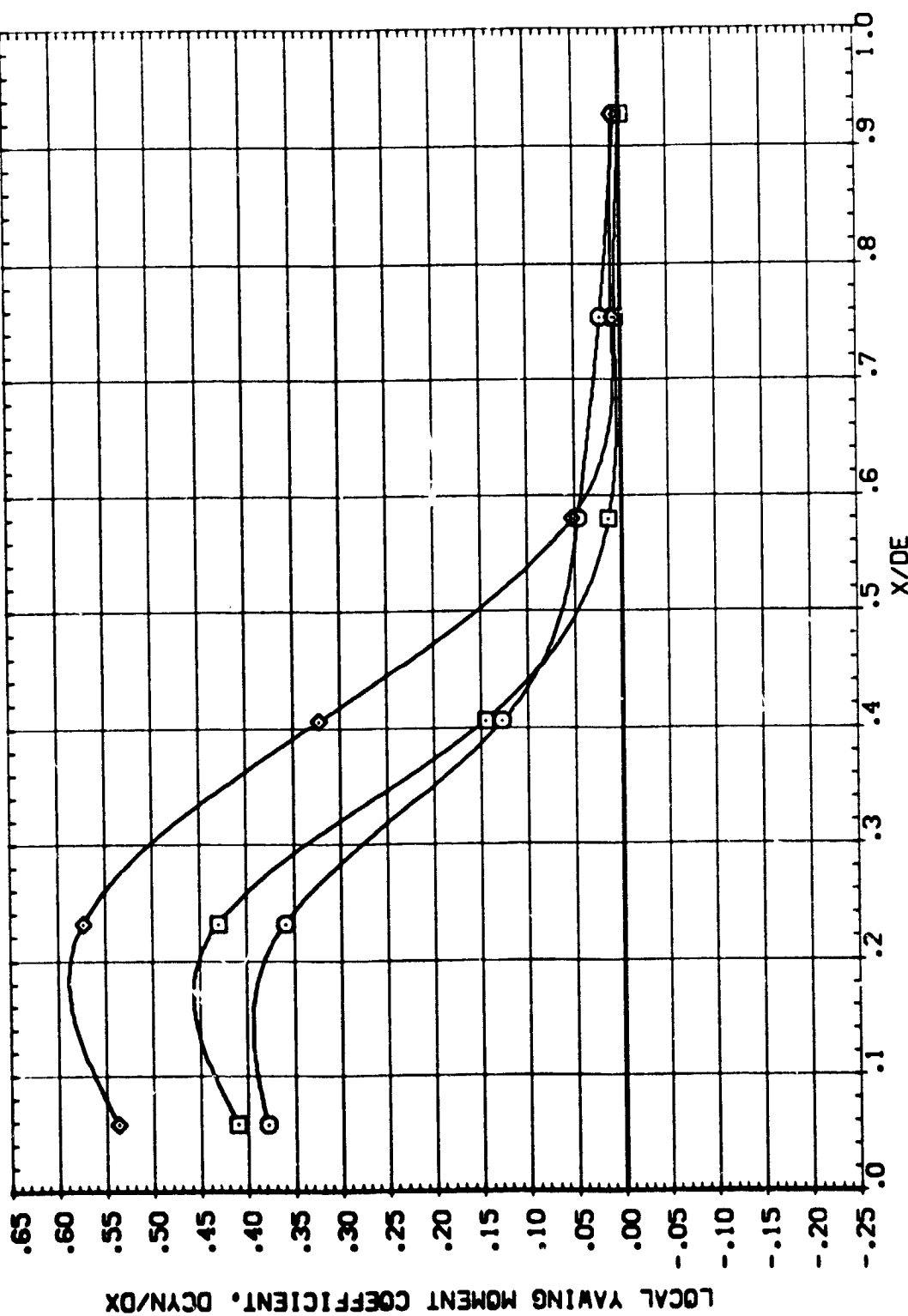


PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS  
 (A)MACH = 1.19

[illegible]

CAL T14-053 IA36 02 + T1 + S1 LOWER RH MPS NOZ. (AUFC08)

SYMBOL	BETA	ALPHA	PARAMETRIC VALUES				REFERENCE INFORMATION			
			POWER	GY1	GY2	GY3	SREF	LREF	BREF	XREF
○	-6.000	1.000	.000	28.310	11.000	.000	49.4000	50.7000	50.7000	50.7000
□	.000	2.020	SRPP	GY1	GY2	GY3	158.0000	50.7000	50.7000	50.7000
◇	6.000	-9.000	GY1	GY2	GY3	GY3	YHPP	ZHPP	YHPP	ZHPP
							.0000	.0000	.0000	.0000
							SCALE	SCALE	SCALE	SCALE
							.0190	.0190	.0190	.0190



PLUME EFFECT ON LOWER RH MPS NOZZLE LOCAL LOAD DISTRIBUTIONS

(A)MACH = 1.19

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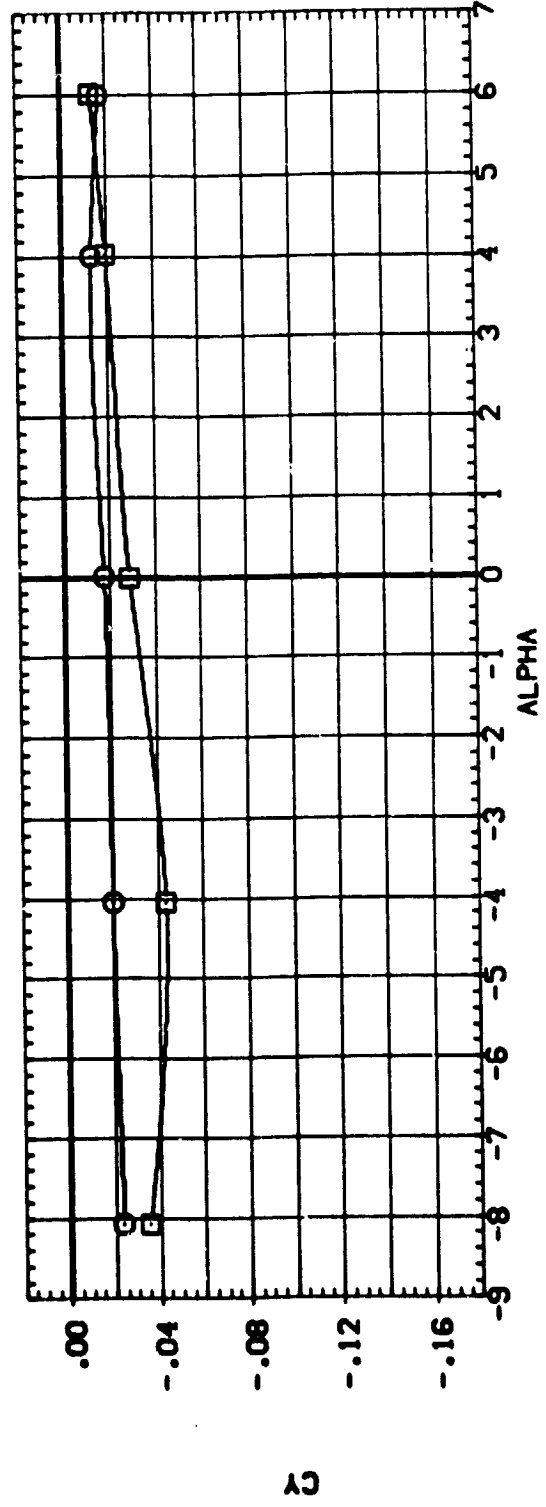
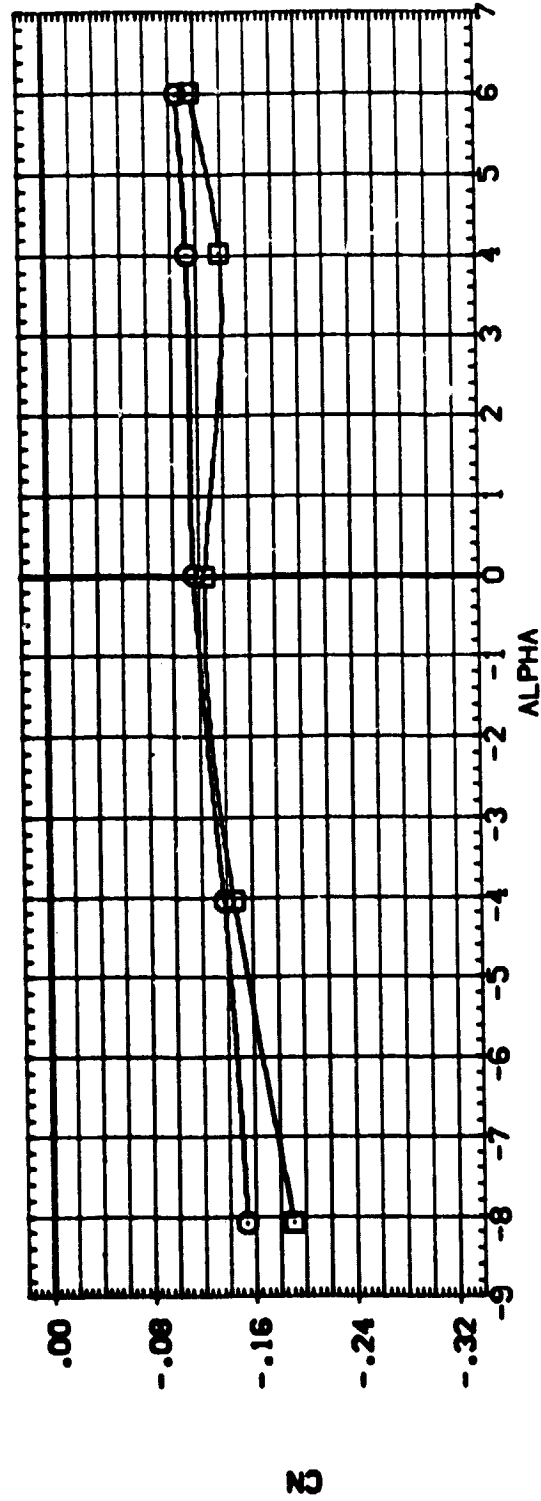




DATA SET SYMBOL: **8** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 (DUF401) CAL T14-053 IAS 02 : T1 : S1 UPPER MPS NOZZLE  
 (DUF402)

POWER: 1.000 CRR: 36.200 SNRPR: 2.300

REFERENCE INFORMATION:  
 SREF: 49.4000 50.4000 50.4000  
 LREF: 50.7000 50.7000 50.7000  
 BREF: 50.7000 50.7000 50.7000  
 RREF: 158.0000 158.0000 158.0000  
 TREF: .0000 .0000 .0000  
 ZREF: .0000 .0000 .0000  
 SCALE: .0190



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

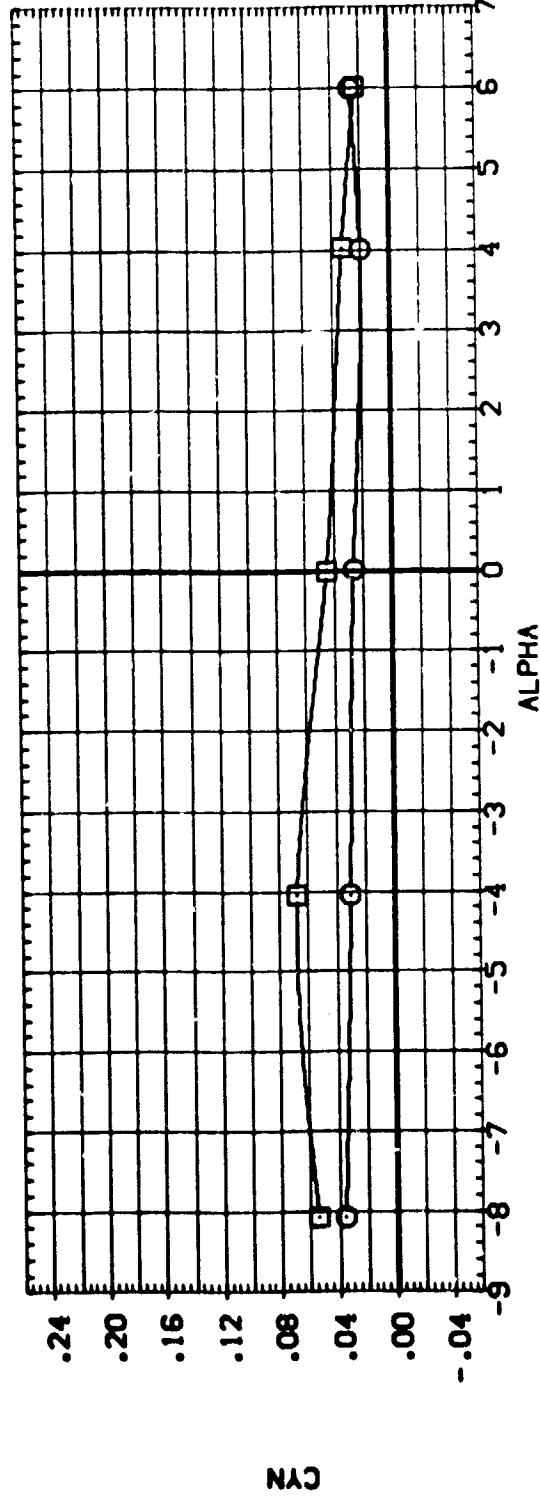
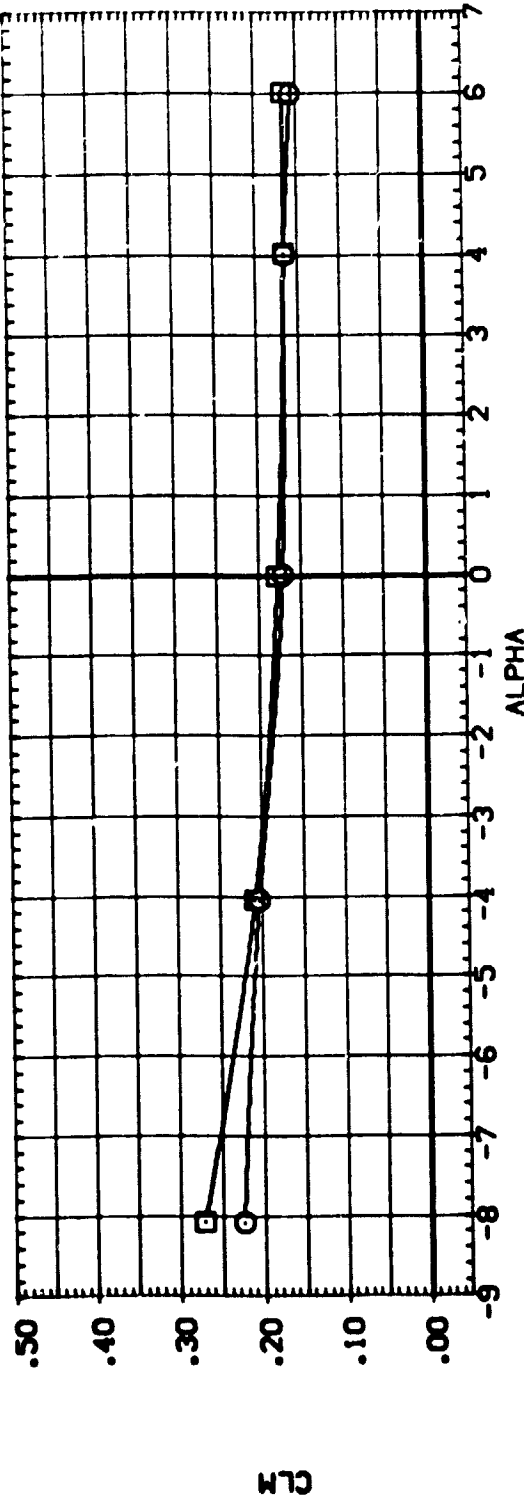
(A)MACH = .90

DATA SET SYMBOL  
(DLFA01)  
(DLFA02)

CONFIGURATION DESCRIPTION  
CAL T14-053 IAS 02 \* T1 \* S1 UPPER MPS NOZZLE  
CAL T14-053 IAS 02 \* T1 \* S1 UPPER MPS NOZZLE

POWER DPR SRPR  
.000 36.200 2.300

REFERENCE INFORMATION  
SRF 49.4000 50.4000  
LREF 90.7000 90.7000  
BREF 90.7000 90.7000  
XREF 158.0000 158.0000  
YREF .0000 .0000  
ZREF .0000 .0000  
SCALE .0190



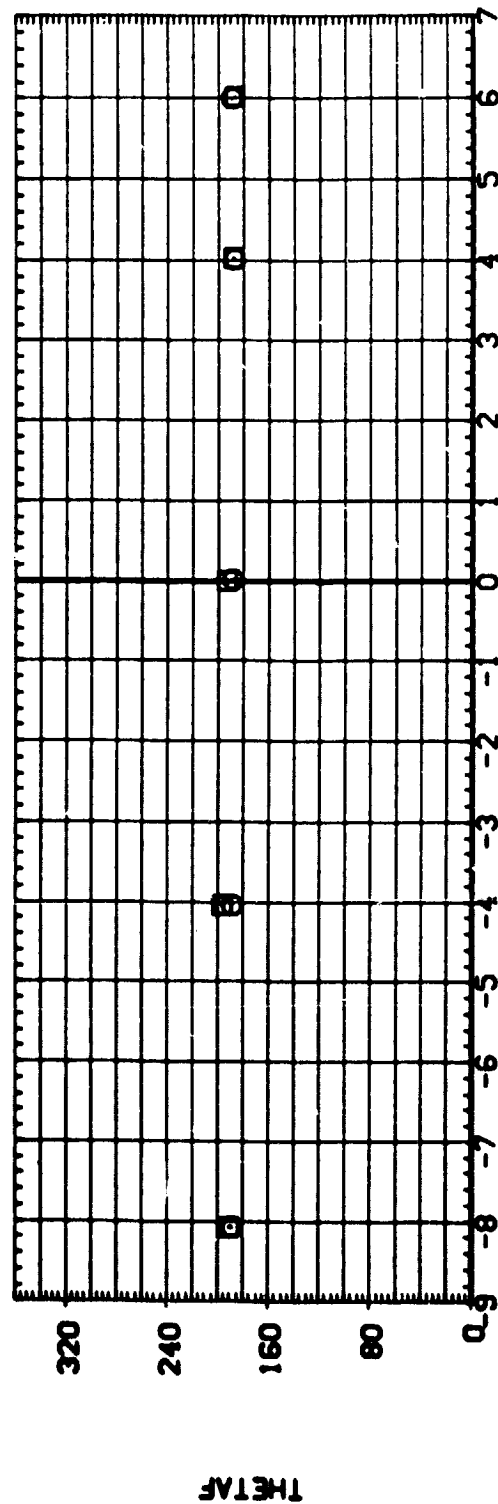
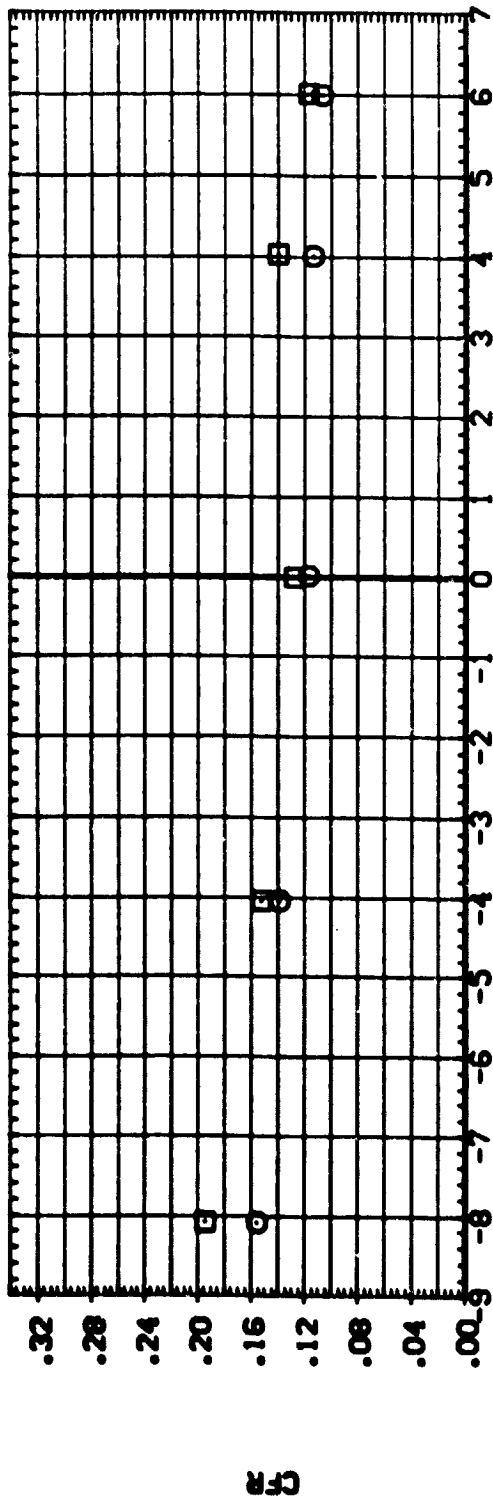
PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(AJMACH = .90







DATA SET SYMBOL: CAL T14-053 (A38 02 : T1 : S1) UPPER MPS NOZZLE  
 (DEFAULT) □ CAL T14-053 (A38 02 : T1 : S1) UPPER MPS NOZZLE

REFERENCE INFORMATION  
 SREF 49.4000 50.4000 50.4000  
 LREF 50.7000 50.7000 50.7000  
 BREF 158.0000 158.0000 158.0000  
 XREF 158.0000 158.0000 158.0000  
 YREF 158.0000 158.0000 158.0000  
 ZREF 158.0000 158.0000 158.0000  
 SCALE .0150



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = .90

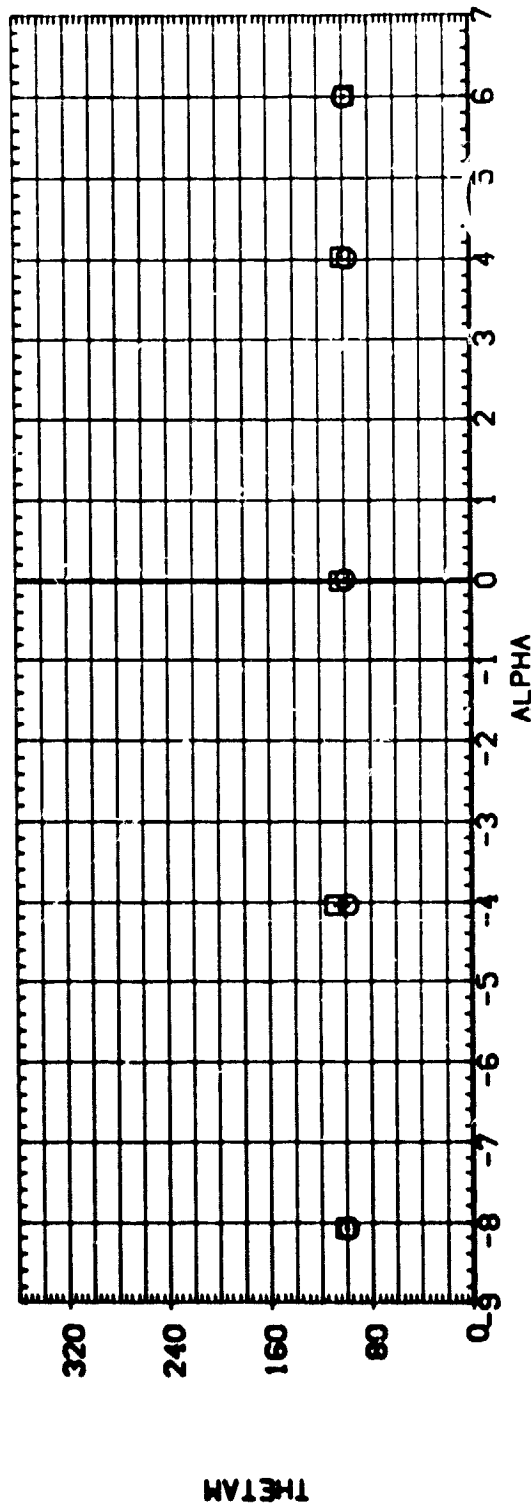
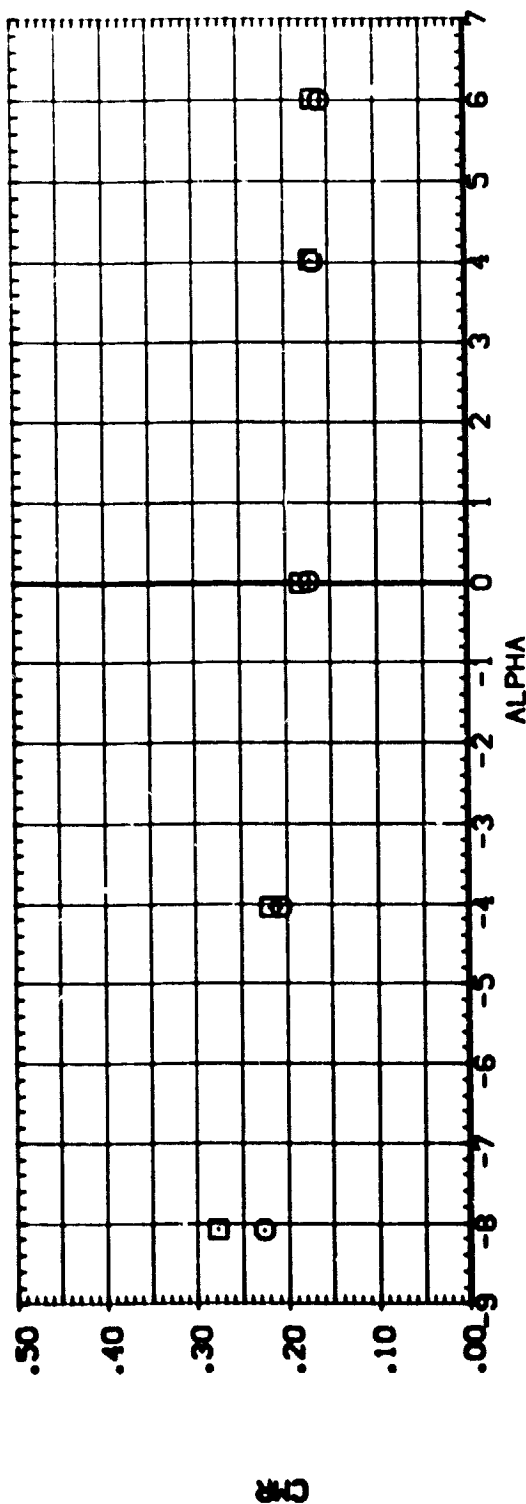
DATA SET SYMBOL: (00FA01) (00FA03)    

CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

POWER: .000 1.000 36.200 2.330

REF: 49.4000 50.7000 50.7000 158.0000 .0000 .0000 .0190

SCALE: .0190



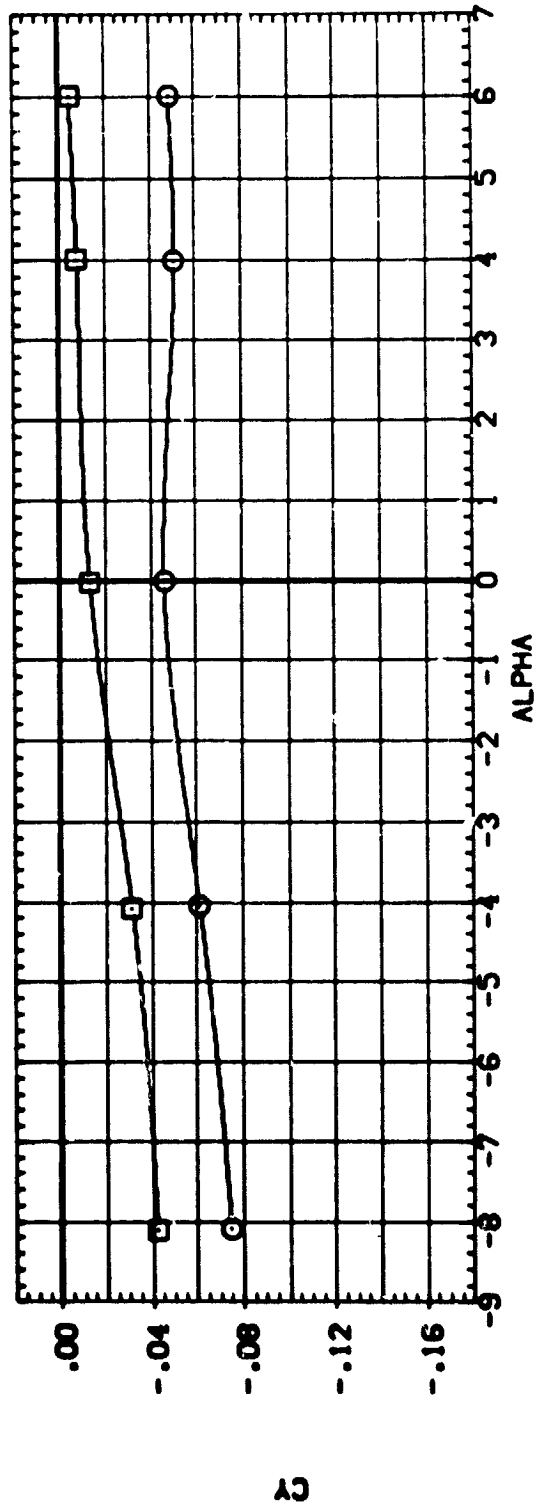
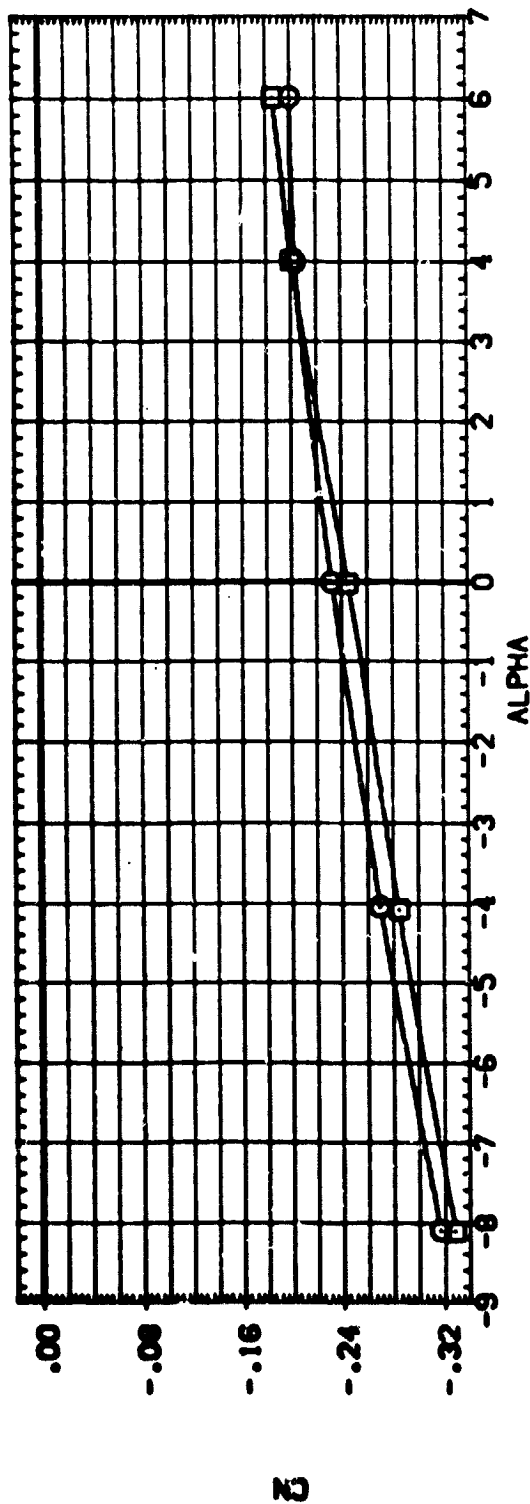
PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = .90

[illegible]

POWER	OWN	SEVEN
1.000	28.310	2.000

SREF	49	.0000	90 FT.
LREF	50	.7000	INCHES
BREF	60	.7000	INCHES
XREF	158	.0000	INCHES
YREF		.0000	INCHES
ZREF		.0000	INCHES
SCALE		.0150	SCALE



# PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

**(A)MACH = 1.20**

DATA SET SYMBOL: (DJFA05) □ (DJFA07) □

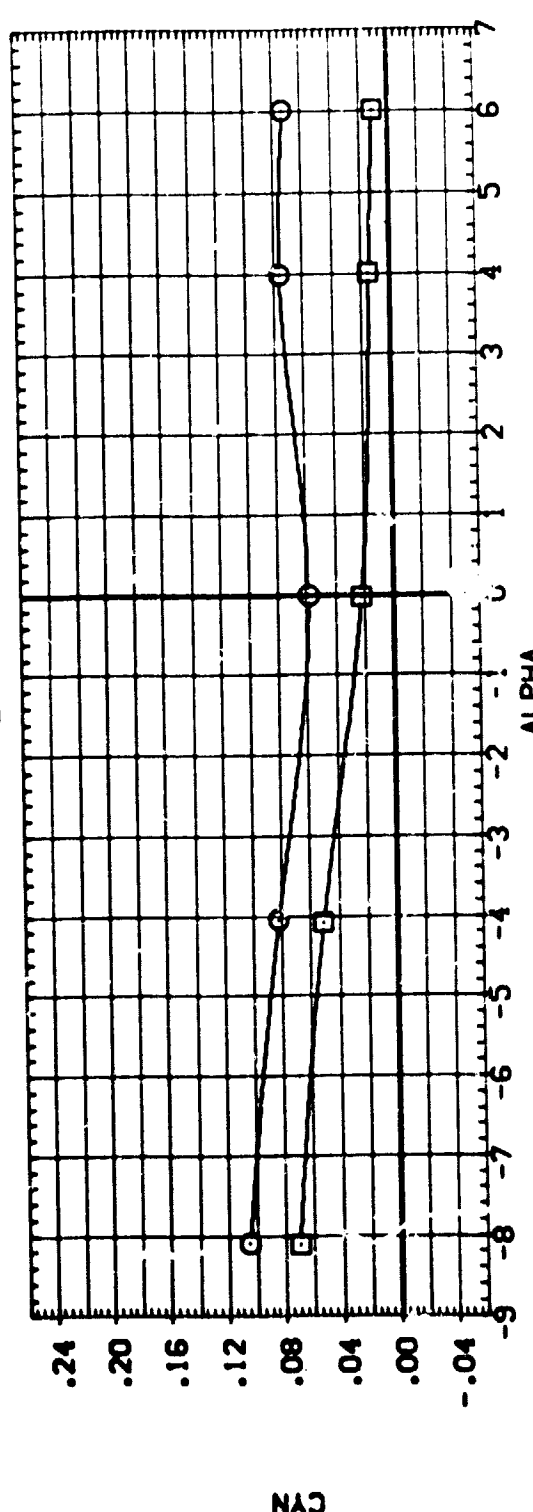
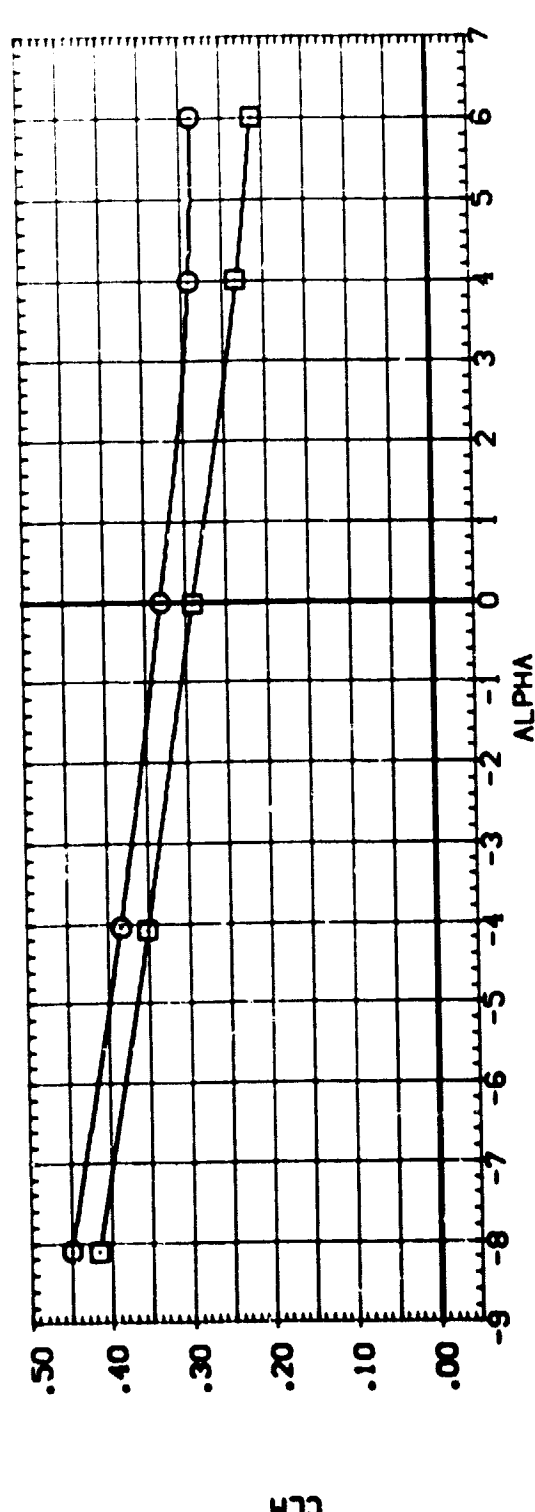
CONFIGURATION DESCRIPTION: CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

POWER: 1.000 28.310 2.020

SPR: 51.4000 50.7000 50.7000 158.0000 .0000 .0000 .0190

REFERENCE INFORMATION: SREF 49.4000 50.7000 50.7000 158.0000 .0000 .0000 .0190

INCHES INCHES INCHES INCHES INCHES INCHES INCHES



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

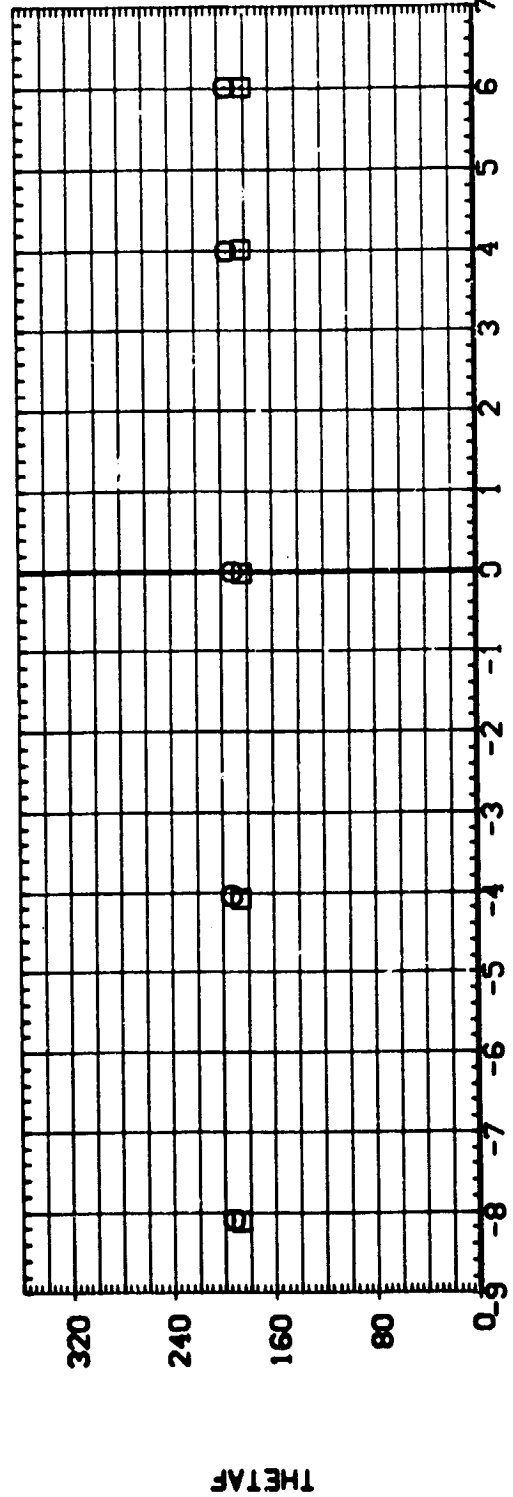
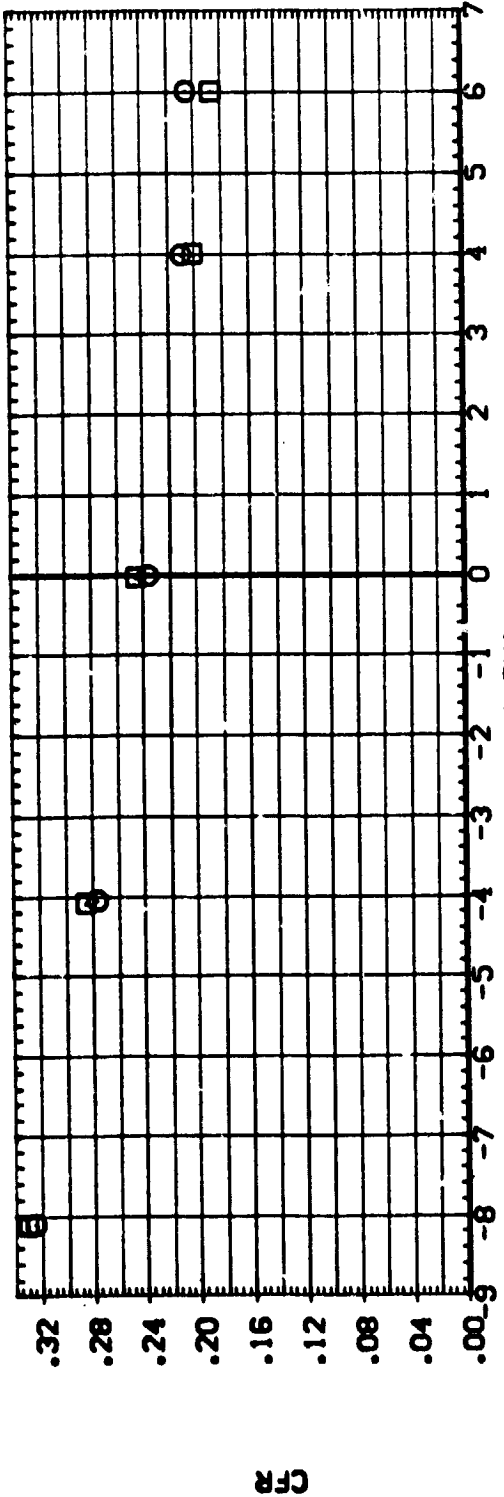


DATA SET SYMBOL: CAL 114-053 (A36 02 + 11 + S1) UPPER MPS NOZZLE  
 (DLFA05) □ (DLFA07) □

CONFIGURATION DESCRIPTION: CAL 114-053 (A36 02 + 11 + S1) UPPER MPS NOZZLE

POWER: 1.000  
 CTR: 28.310  
 SNRPR: 2.000

REFERENCE INFORMATION:  
 SREF: 49.4000 SQ.FT.  
 LREF: 90.7000 INCHES  
 SREF: 90.7000 INCHES  
 LREF: 90.7000 INCHES  
 XREF: 150.0000 INCHES  
 YREF: .0000 INCHES  
 ZREF: .0000 INCHES  
 SCALE: .0150



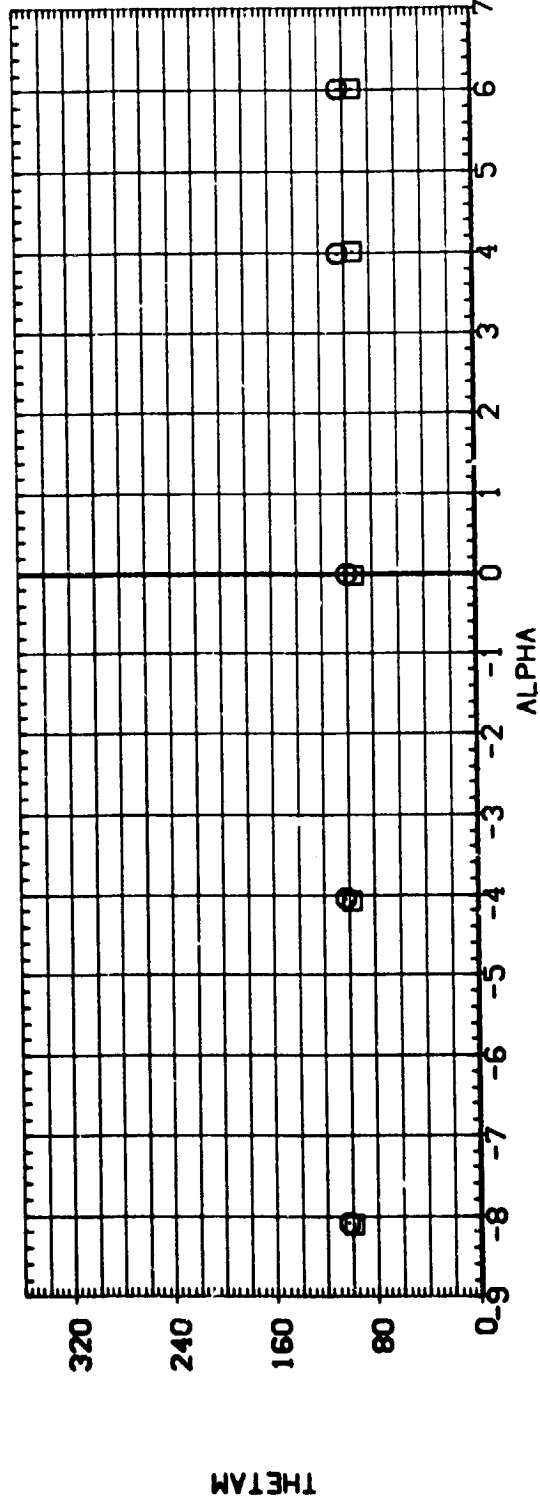
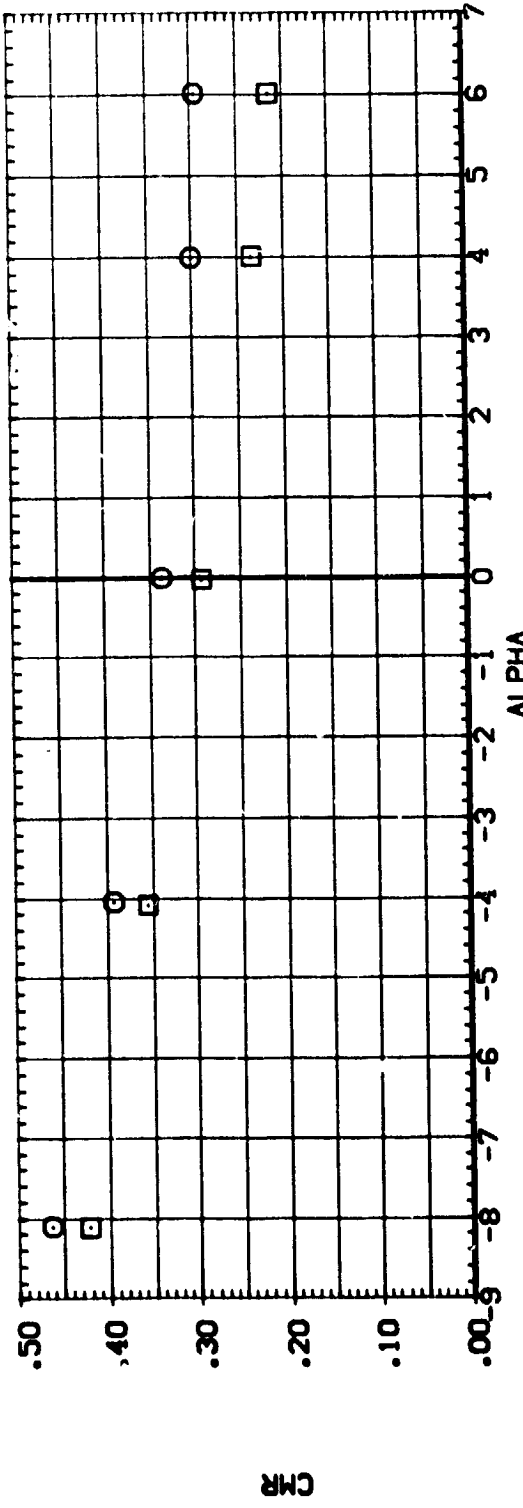
PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

DATA SET SYMBOL: [ ] CONFIGURATION DESCRIPTION: CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE  
 (DUFAGS) [ ] CAL T14-053 1A36 02 + T1 + S1 UPPER MPS NOZZLE  
 (DUFAGT) [ ]

POWER: 1.000 QPR: 28.310 SRMPR: 2.020

REFERENCE INFORMATION:  
 SREF: 45.4000 SQ. FT.  
 LREF: 50.7000 INCHES  
 BREF: 50.7000 INCHES  
 XMRP: 158.0000 INCHES  
 YMRP: .0000 INCHES  
 ZMRP: .0000 INCHES  
 SCALE: .0190 INCHES



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

CALMACH = 1.20





## REFERENCE INFORMATION



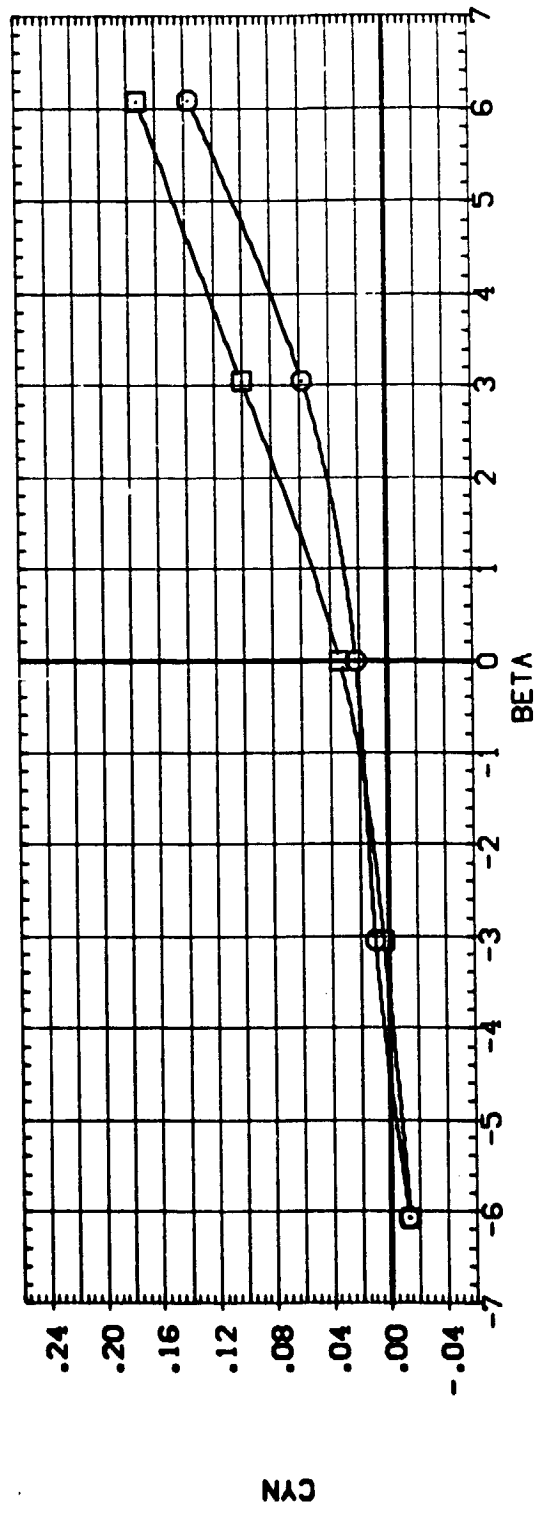
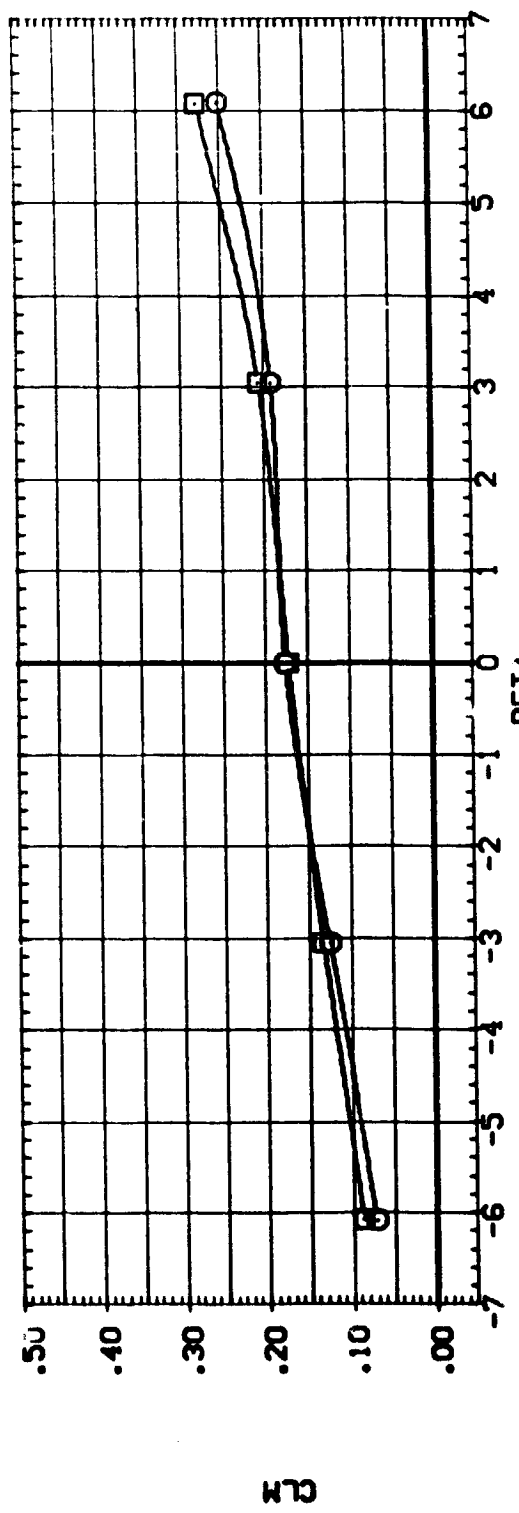
**CSMACH = .90**

DATA SET SYMBOL: (DLFA02) (DLFA04)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE  
 CAL T14-053 IAS6 02 + T1 + S1 UPPER MPS NOZZLE

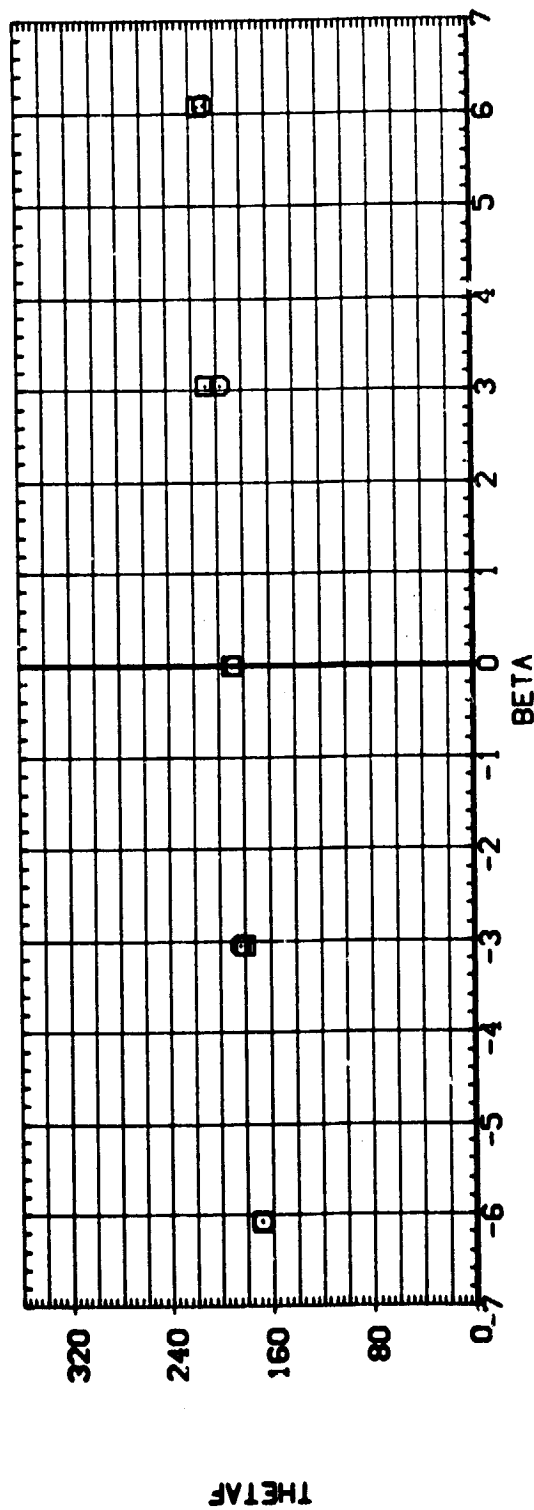
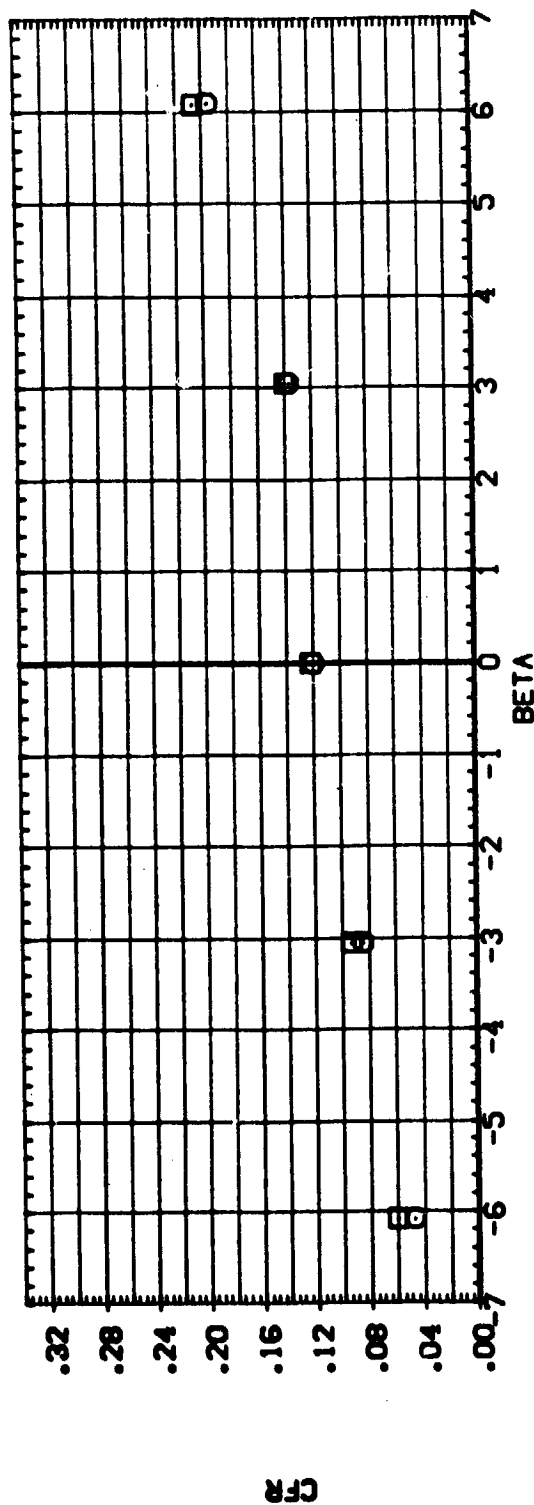
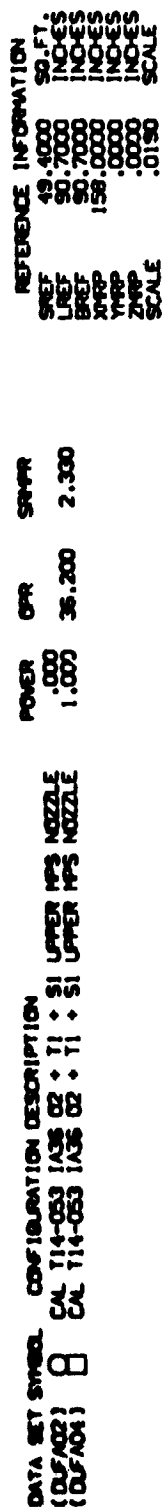
POWER: 0PR 36.200 2.330

REFERENCE INFORMATION:  
 SREF 49.4000 SQ.FT.  
 LREF 50.7000 INCHES  
 BREF 50.7000 INCHES  
 XPRP 158.0000 INCHES  
 YPRP .0000 INCHES  
 ZPRP .0000 INCHES  
 SCALE .0190



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = .90



# PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

$$\{A\}MACH = .90$$

DATA SET SYMBOL: (DLFA02) (DLFA04)

CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

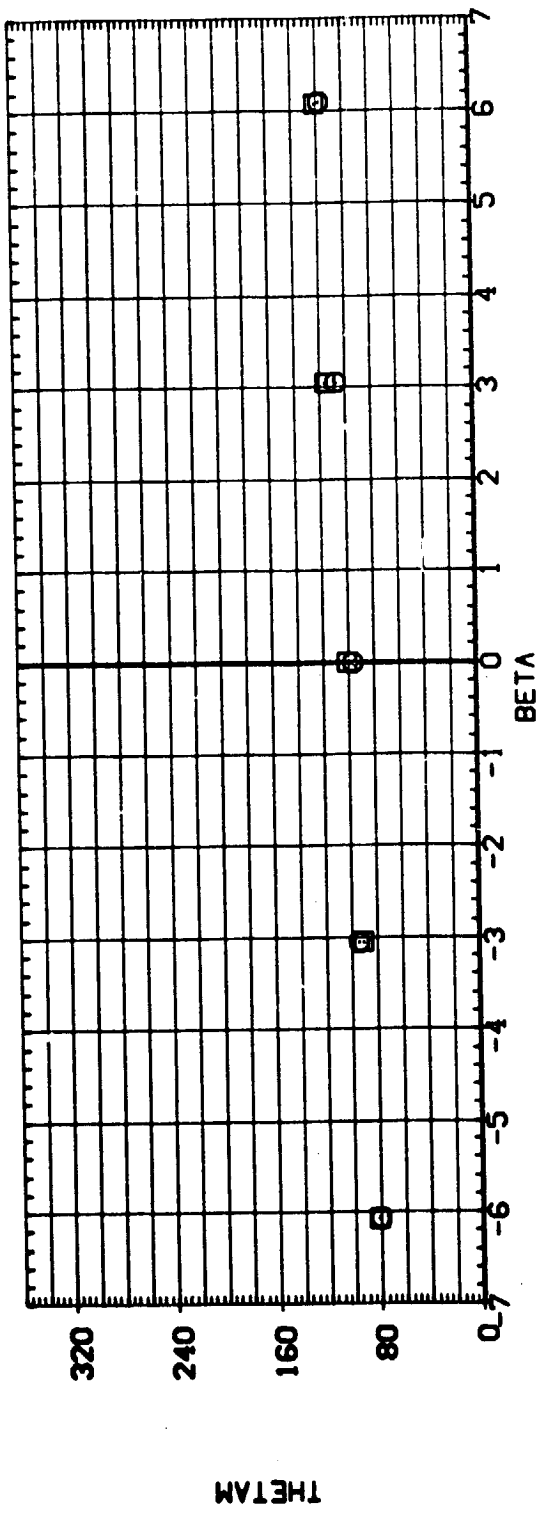
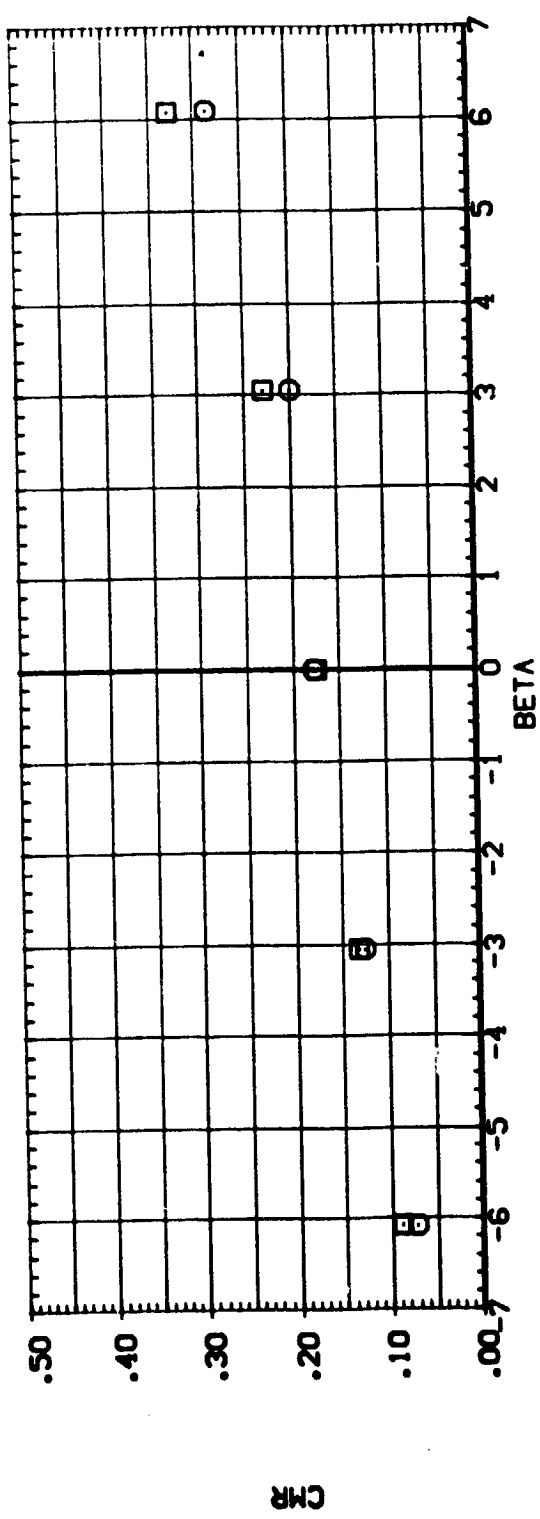
POWER: 0.000 1.000

OPR: 36.200

SRPR: 2.330

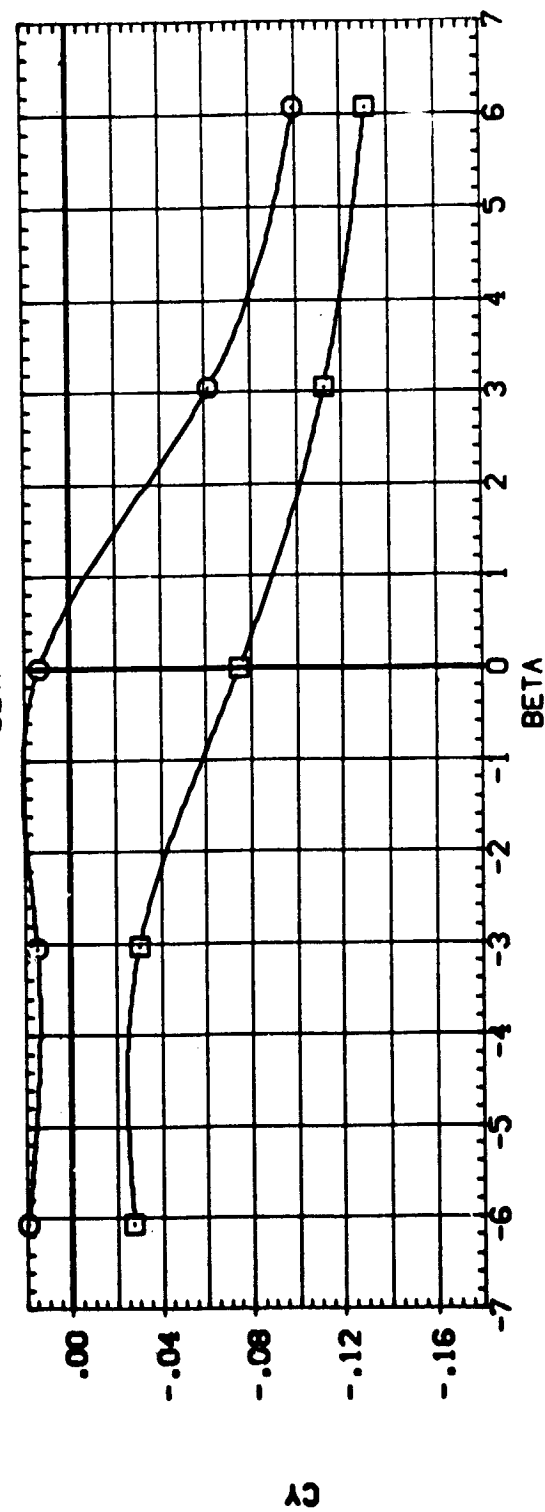
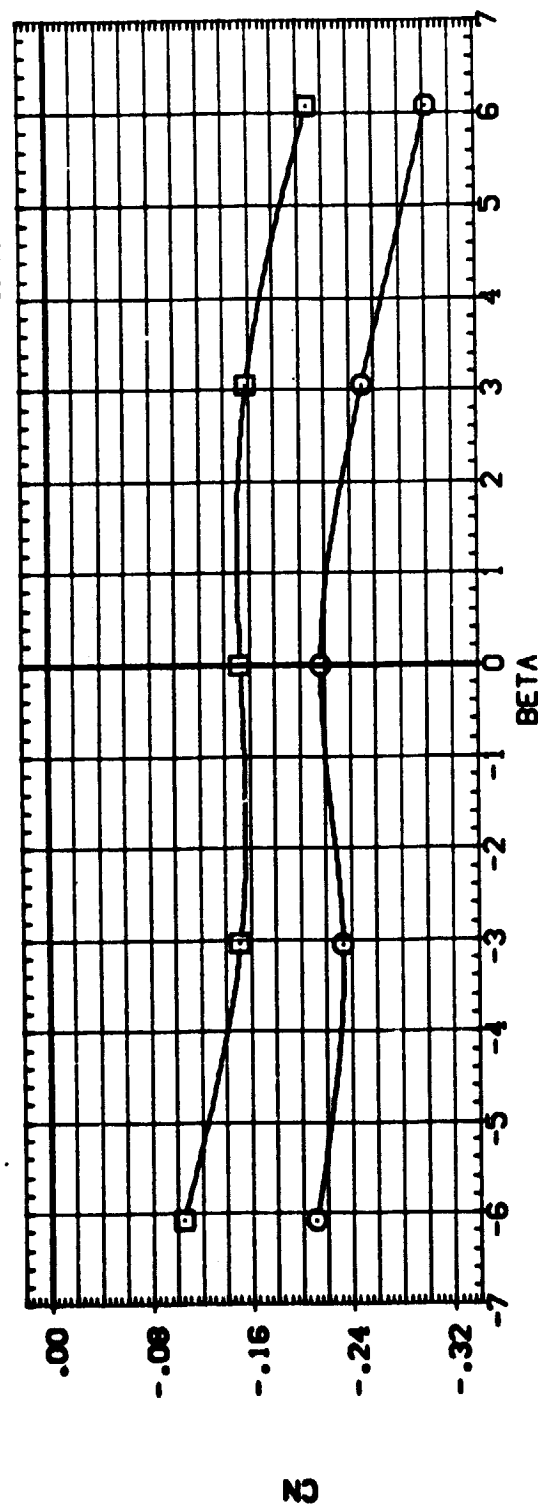
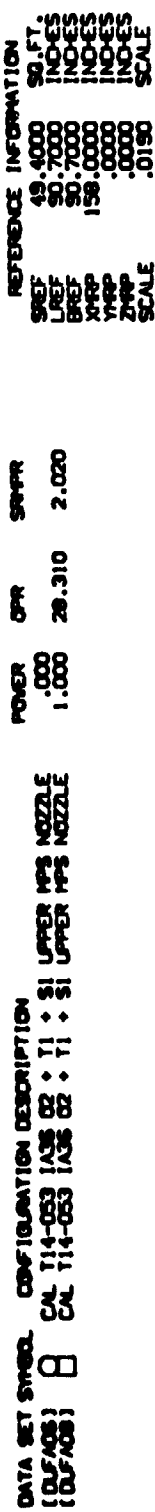
REFERENCE INFORMATION:

SREF	49.4000	50.0000
LREF	90.7000	90.7000
BREF	90.7000	90.7000
YMRP	158.0000	158.0000
ZMRP	.0000	.0000
SCALE	.0190	SCALE





PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = .90



# PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

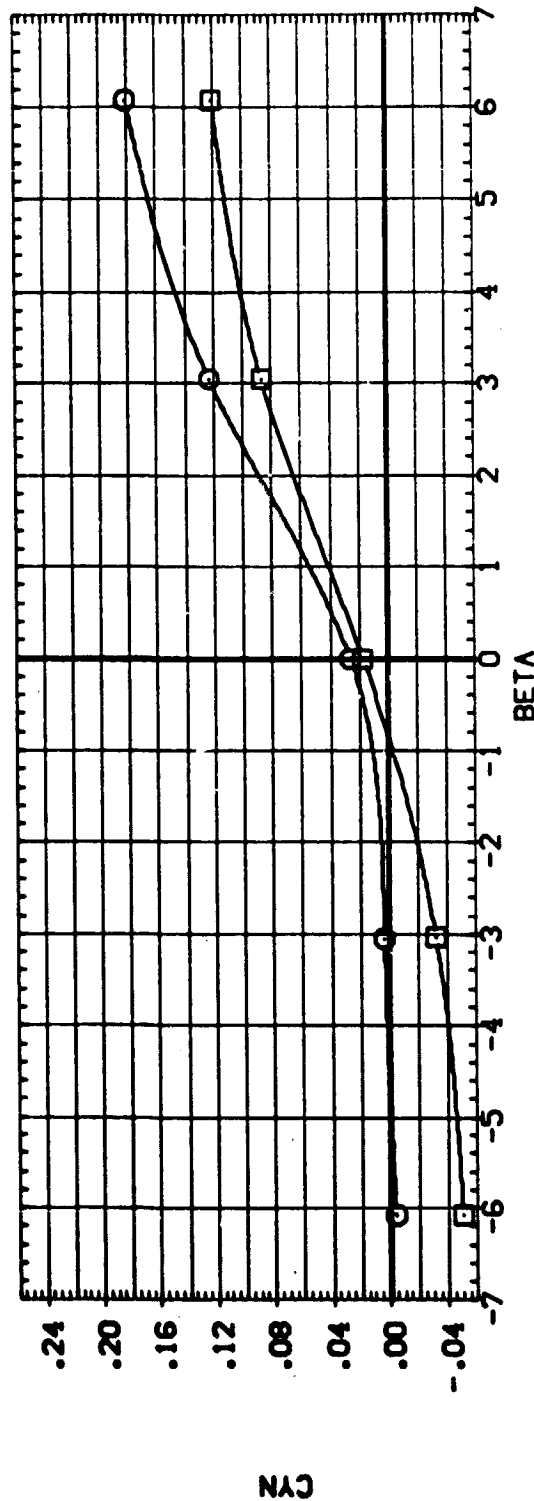
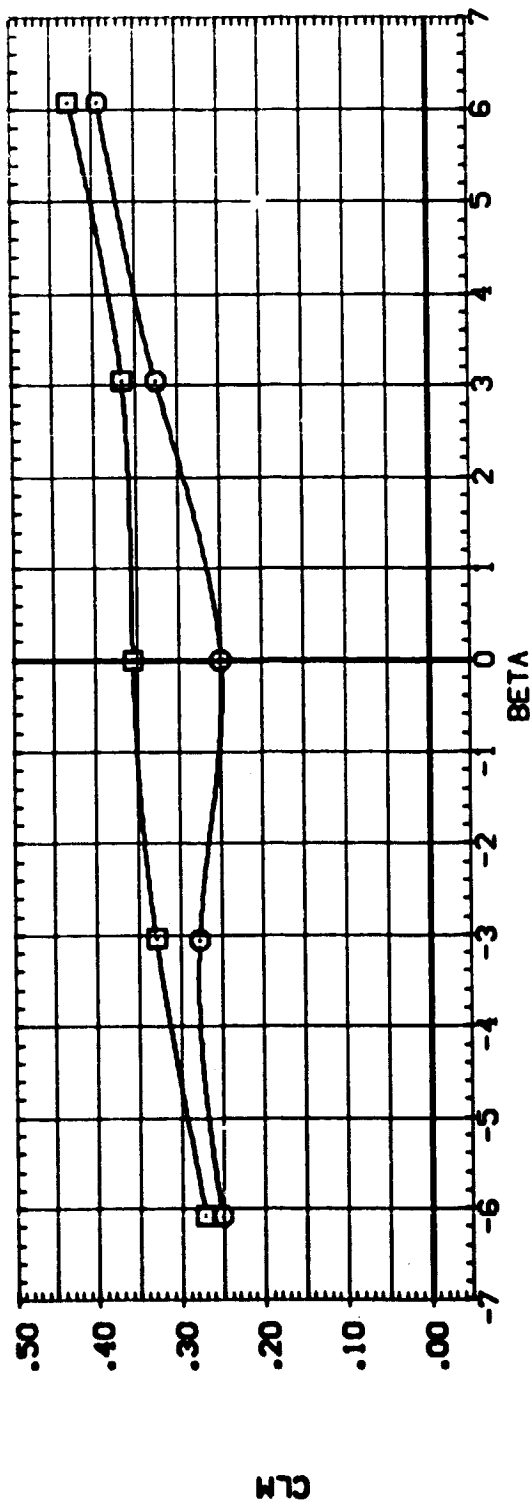
**(A)MACH = 1.20**

DATA SET SYMBOL:  (DFA08)  (DFA09)

CONFIGURATION DESCRIPTION  
 CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

POWER DFR SFRP  
 .000 28.310 2.020

REFERENCE INFORMATION  
 SREF 49.4000 50.4000 50.4000  
 LREF 90.7000 90.7000 90.7000  
 XREF 90.7000 90.7000 90.7000  
 YREF .0000 .0000 .0000  
 ZREF .0000 .0000 .0000  
 SCALE .0190



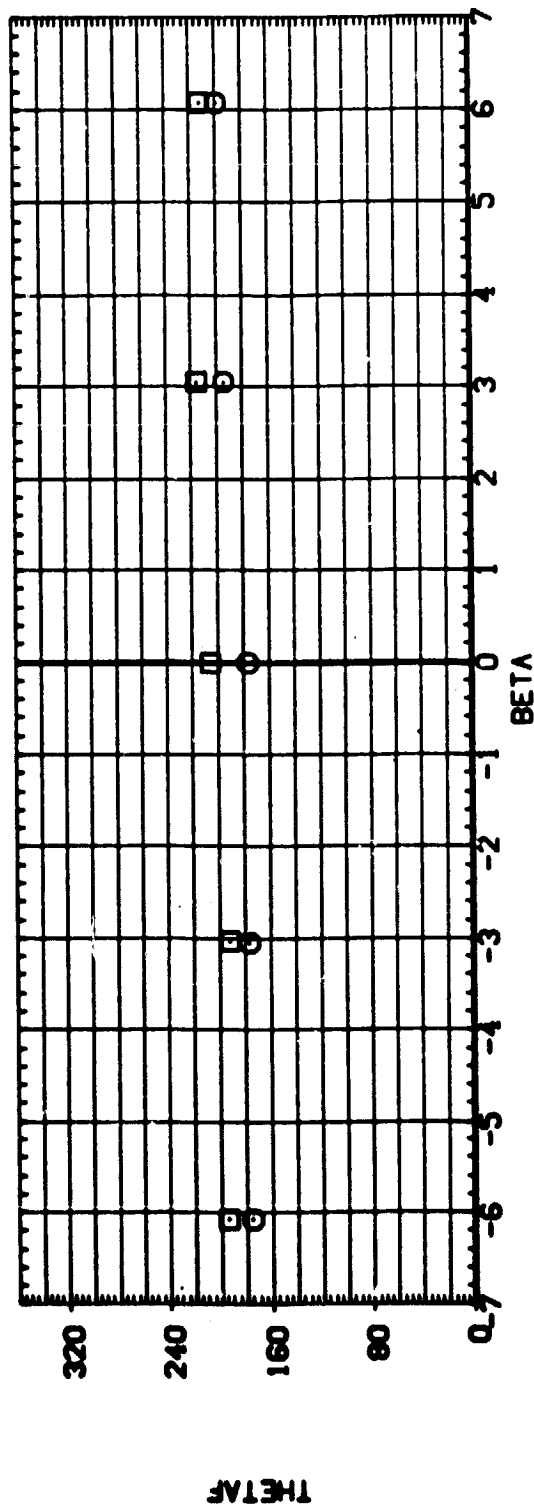
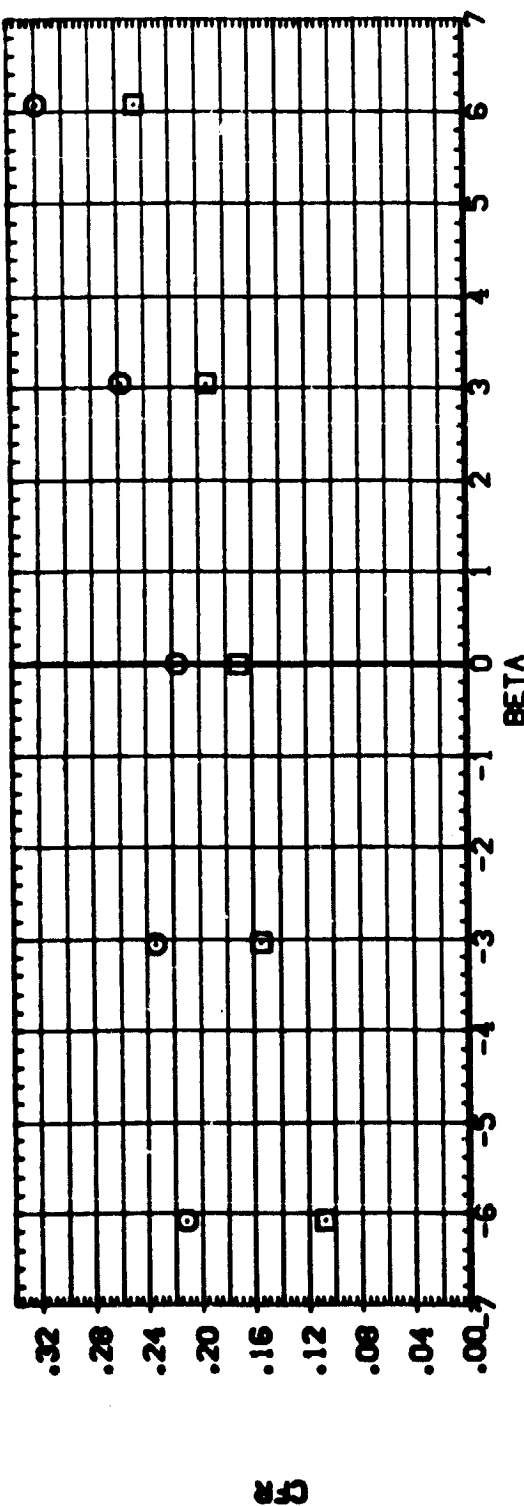
PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS  
 (A)MACH = 1.20



DATA SET SYMBOL: CAL 714-053 IAS 02 : 71 : S1 UPPER MPS NOZZLE  
 (DEFAULT) □ CAL 714-053 IAS 02 : 71 : S1 UPPER MPS NOZZLE

POWER GPR SWPR  
 .000 28.310 2.020  
 1.000

REFERENCE INFORMATION  
 SNET 49-4000 50-FT.  
 LNET 50-7000 INCHES  
 BNET 50-7000 INCHES  
 ATRP 150 INCHES  
 TRAP .0000 INCHES  
 ZTRP .0000 INCHES  
 SCALE .0180 INCHES



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

DATA SET SYMBOL: B  
 (DFA08)  
 (DFA08)

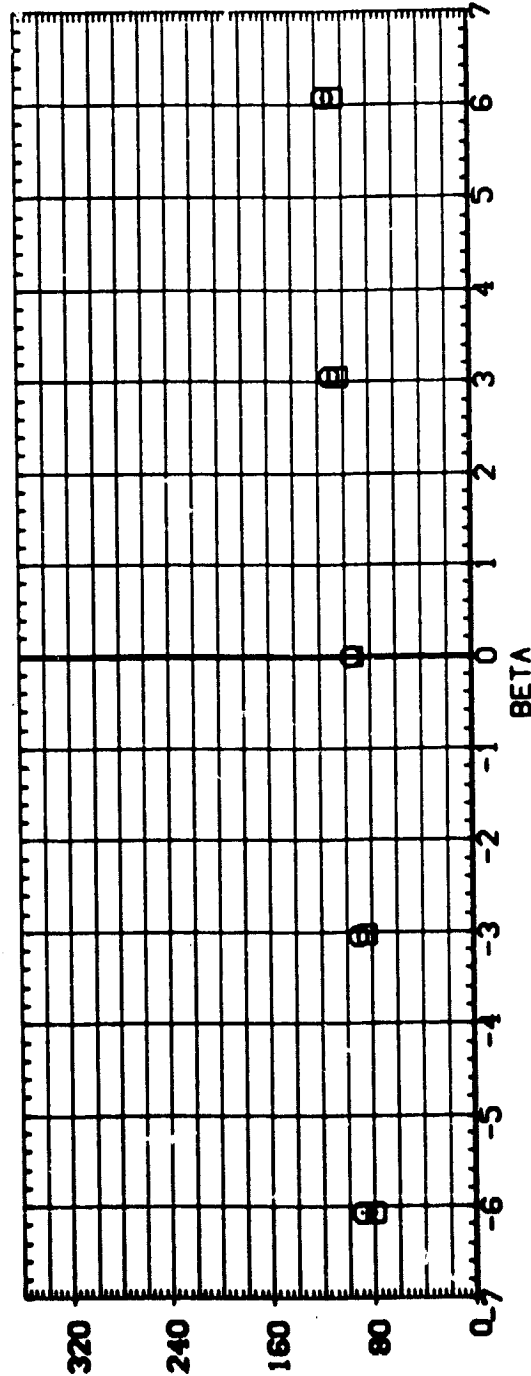
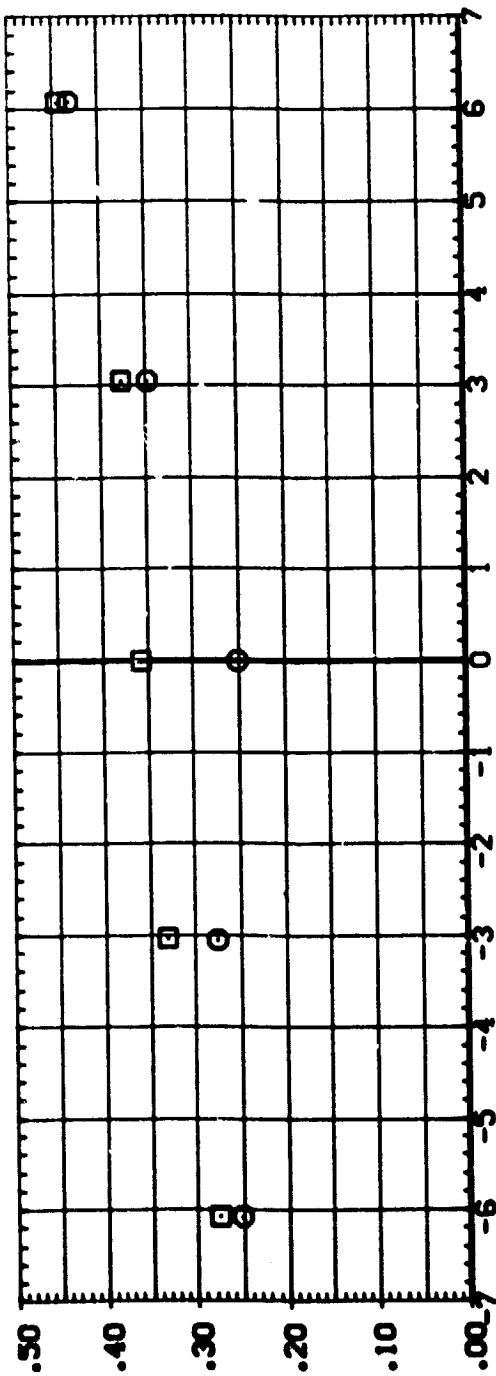
CONFIGURATION DESCRIPTION  
 CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE  
 CAL T14-053 IAS 02 + T1 + S1 UPPER MPS NOZZLE

POWER: .000  
 1.000

OPR: 20.310

SRPP: 2.020

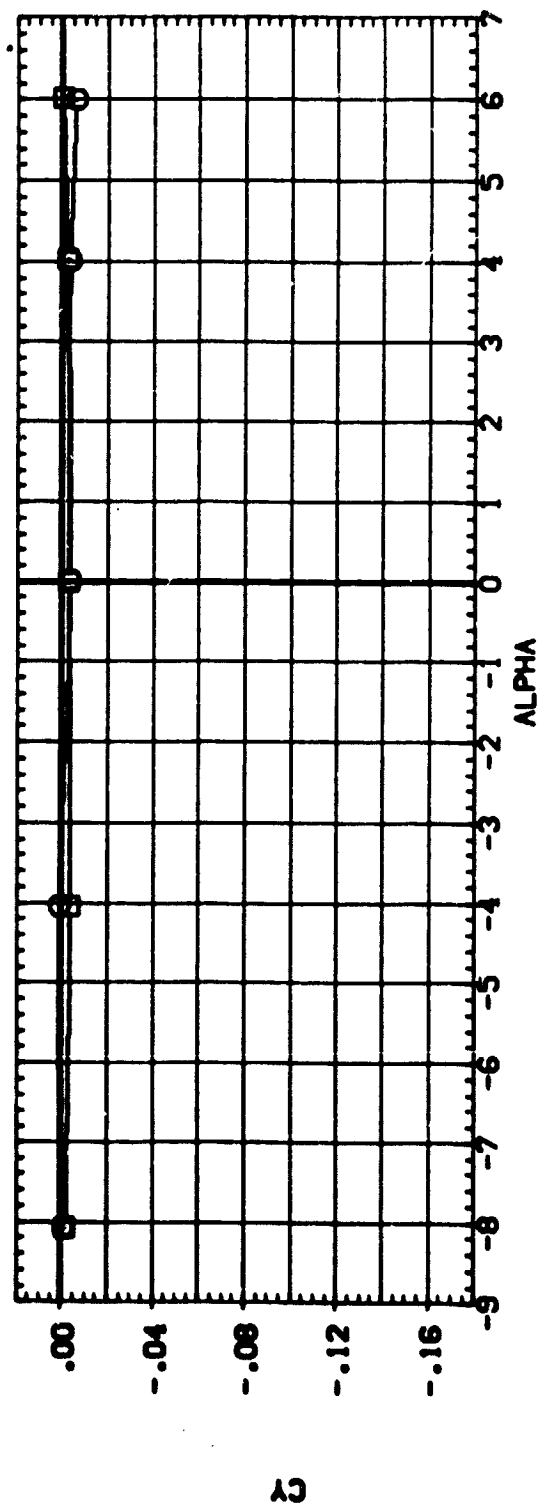
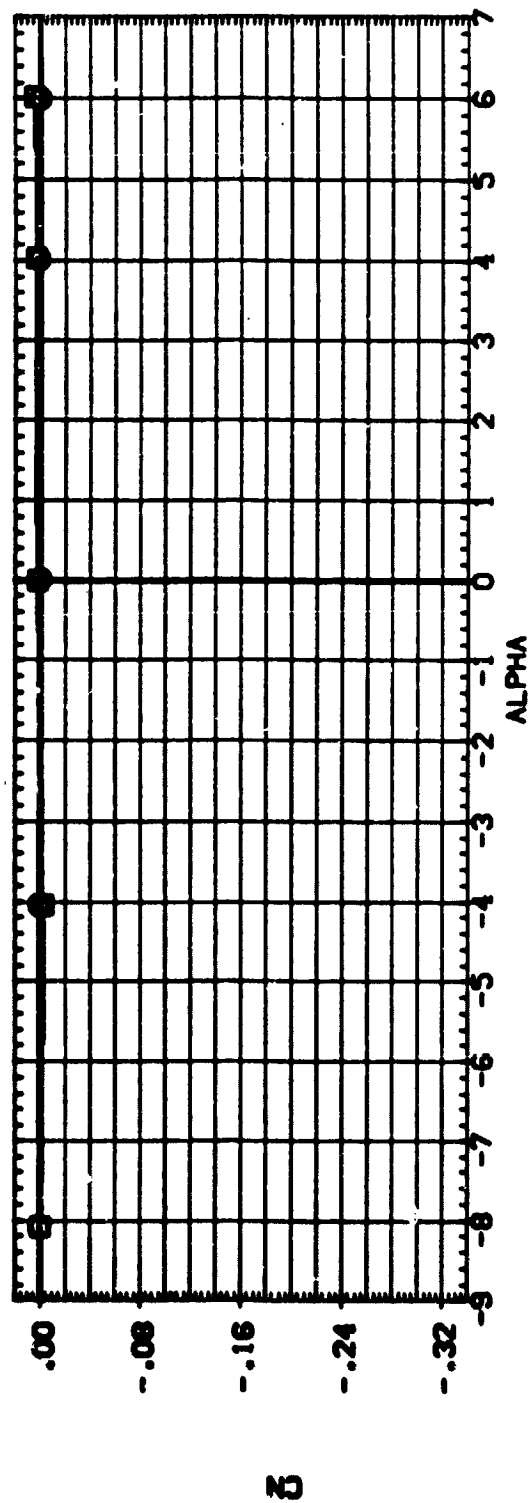
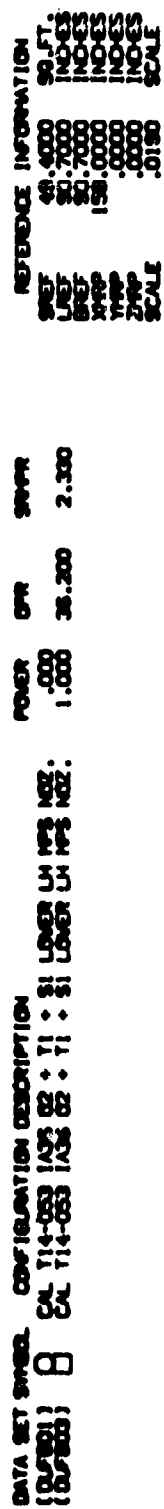
REFERENCE INFORMATION:  
 SREF: 49.4000 50.4000 50.4000  
 LREF: 50.7000 50.7000 50.7000  
 BREF: 50.7000 50.7000 50.7000  
 XTRP: 158.0000 158.0000 158.0000  
 YTRP: .0000 .0000 .0000  
 ZTRP: .0000 .0000 .0000  
 SCALE: .0190



PLUME EFFECT ON UPPER MPS NOZZLE TOTAL LOADS

(AJMACH = 1.20)





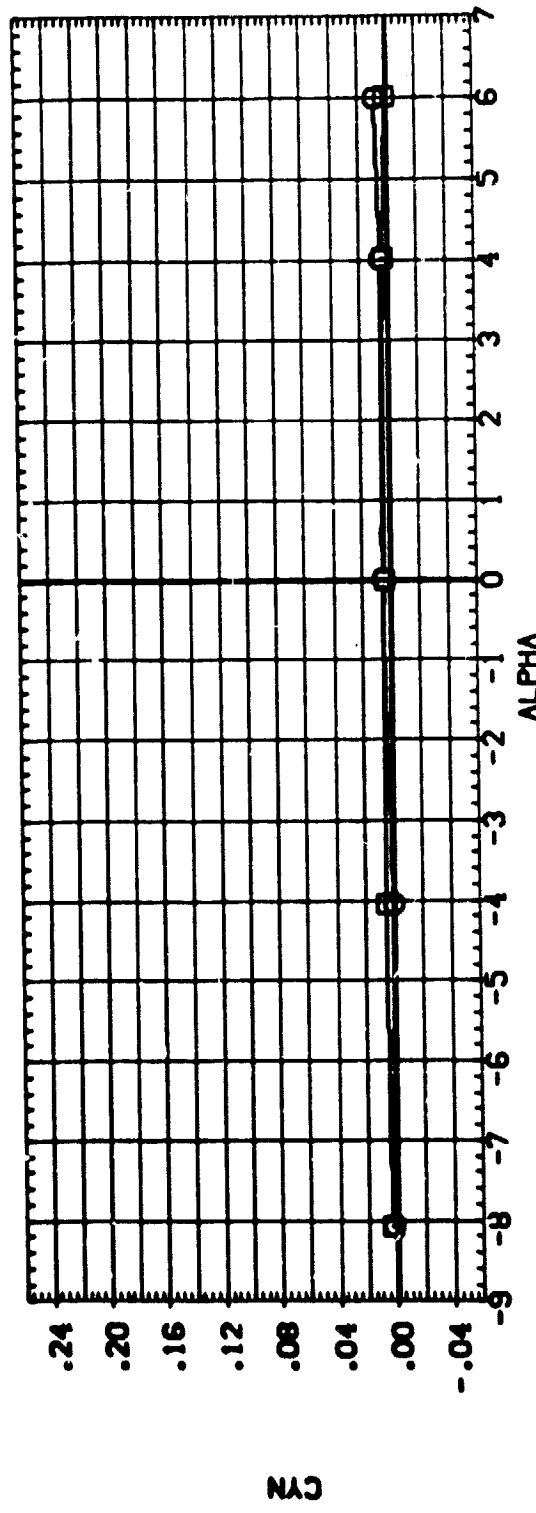
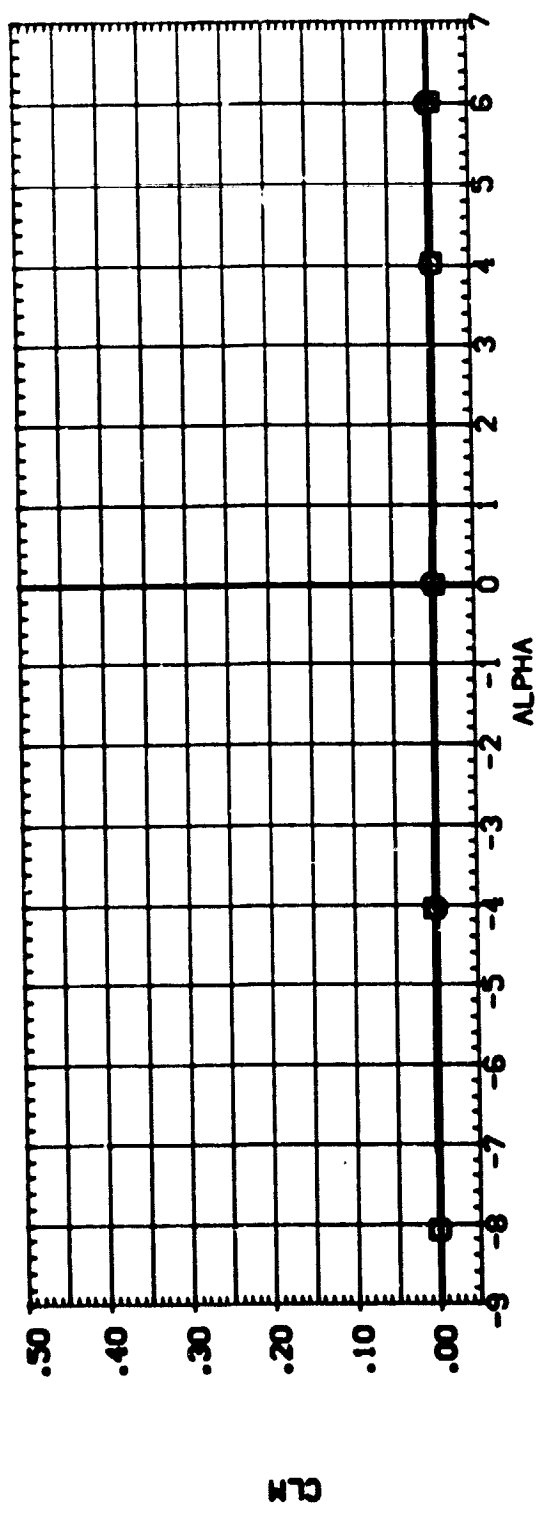
# PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

**(A)MACH = .90**

DATA SET SYMBOL: CAL 114-053 1A36 02 : 11 : S1 LOWER LH MPS NOZ:  
 (OUTP01) (OUTP02) (OUTP03)

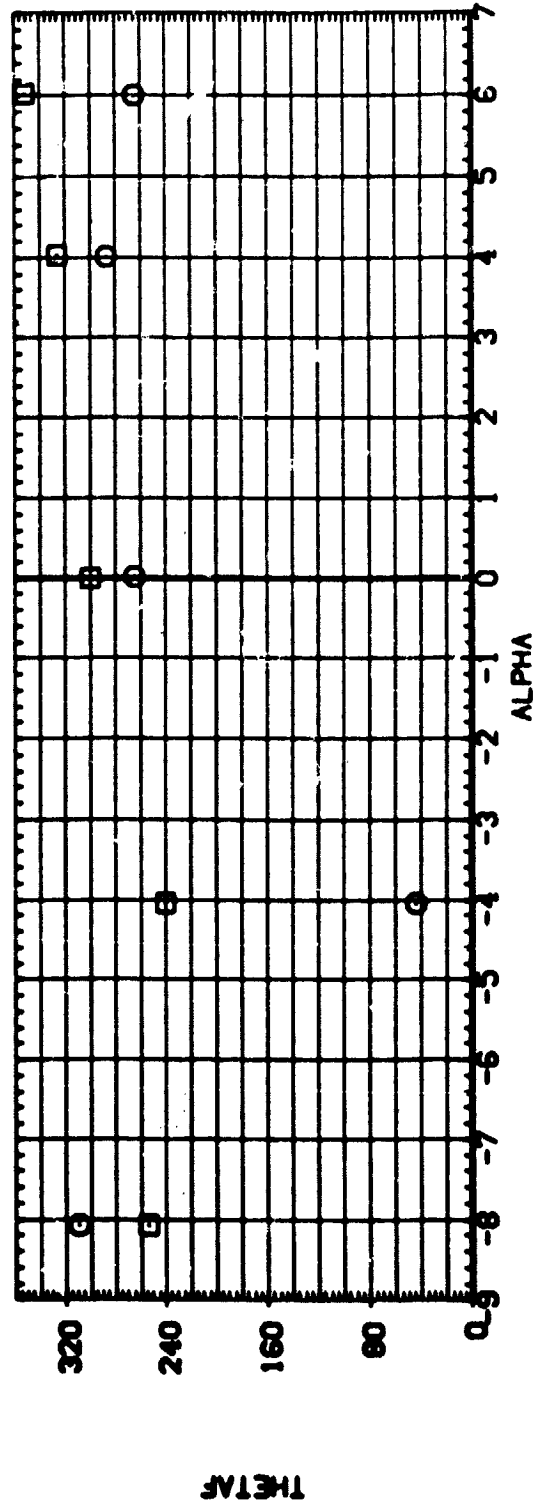
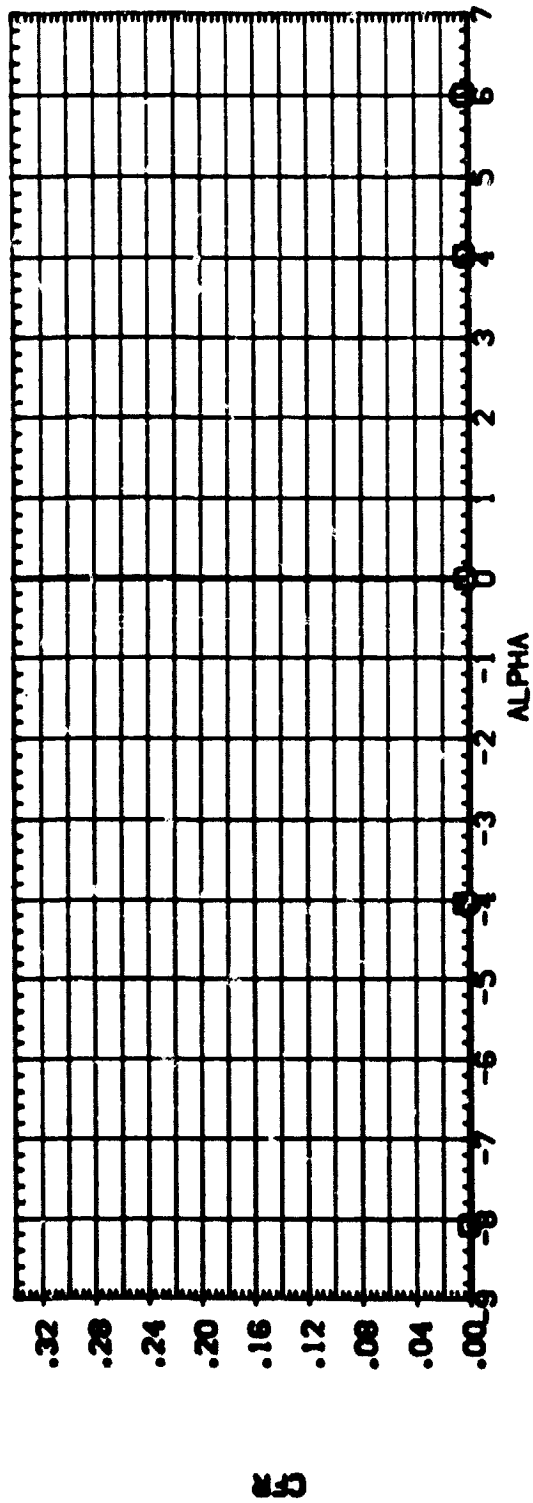
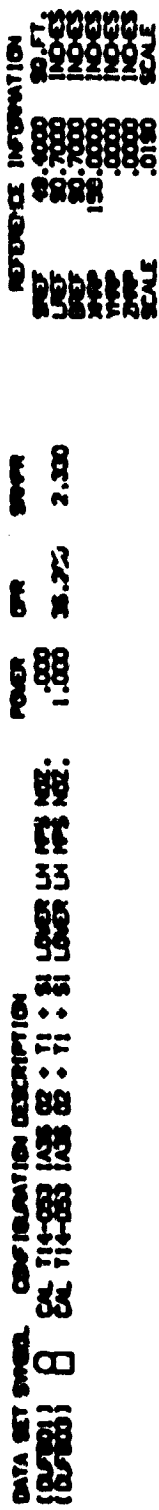
POWER CPM SNPPR  
 .000 36.200 2.330  
 1.000

REFERENCE INFORMATION  
 SREF 49.4000 50.57  
 LREF 50.7000 IN-ES  
 BREF 50.7000 IN-ES  
 XREF 138.0000 IN-ES  
 YREF .0000 IN-ES  
 ZREF .0000 IN-ES  
 SCALE .0150 SCALE



PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

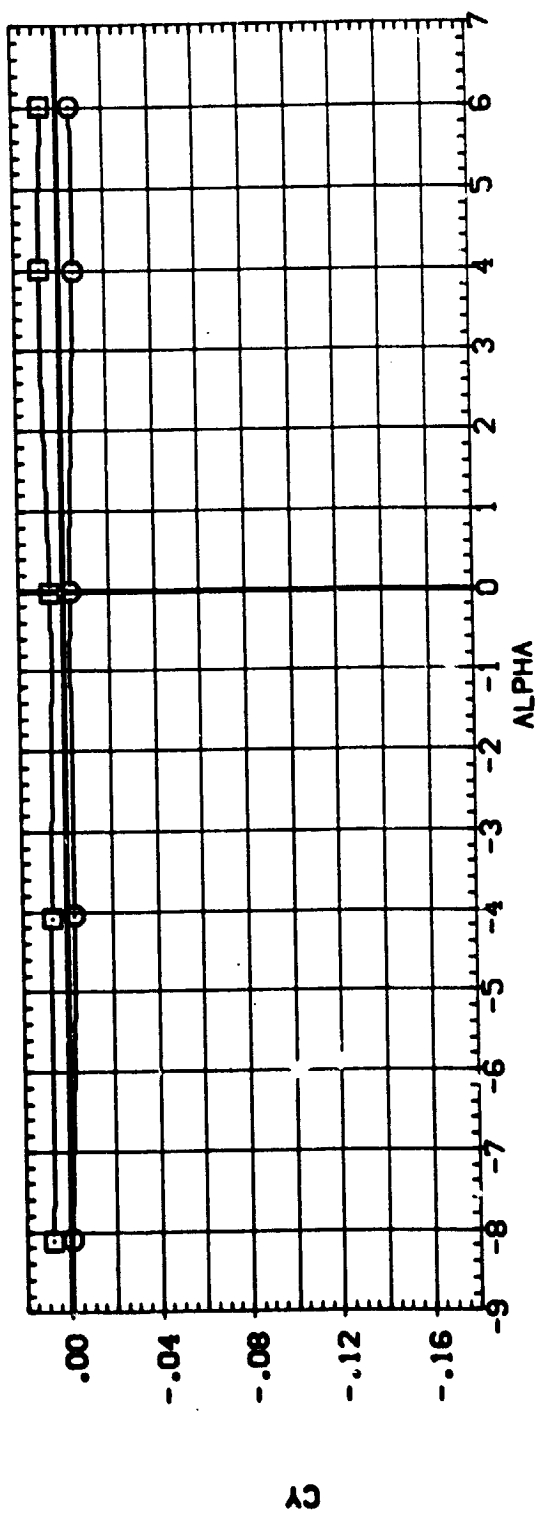
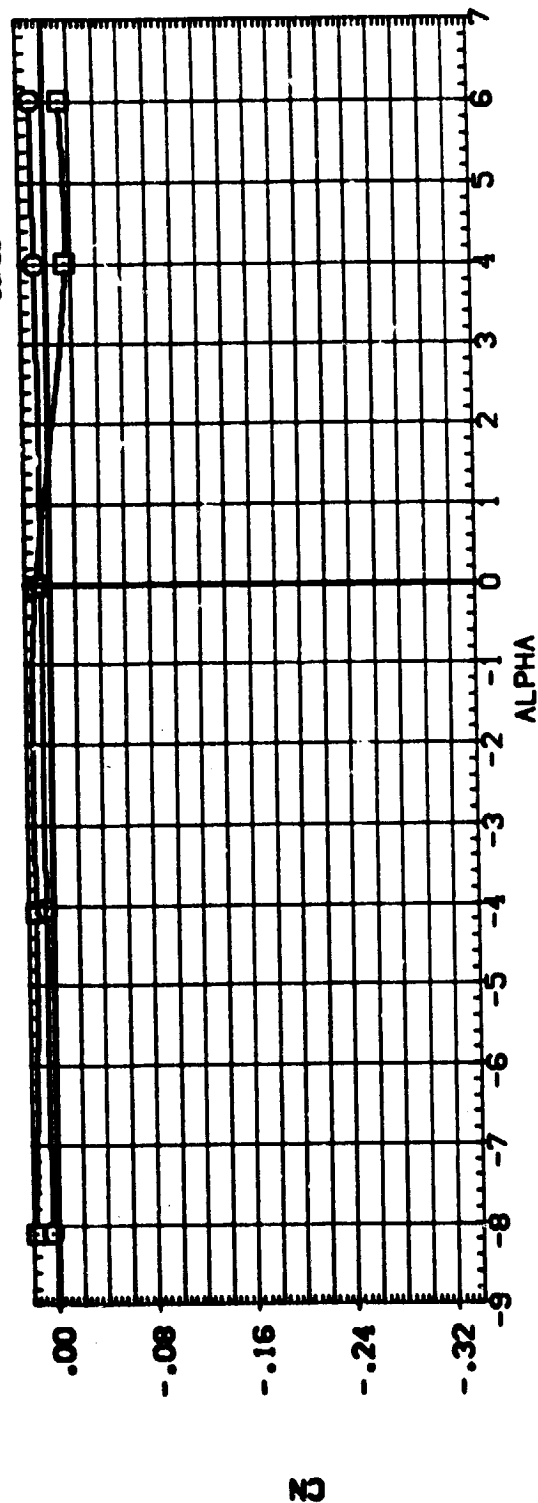
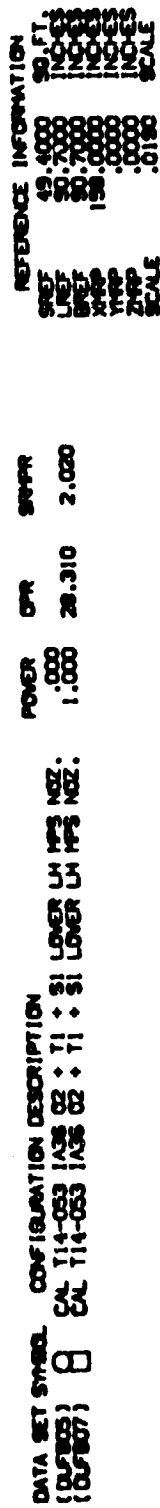
(A)MACH = .90



### PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

$(A)H\bar{A}G^{\dagger} = .90$





### PRIME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

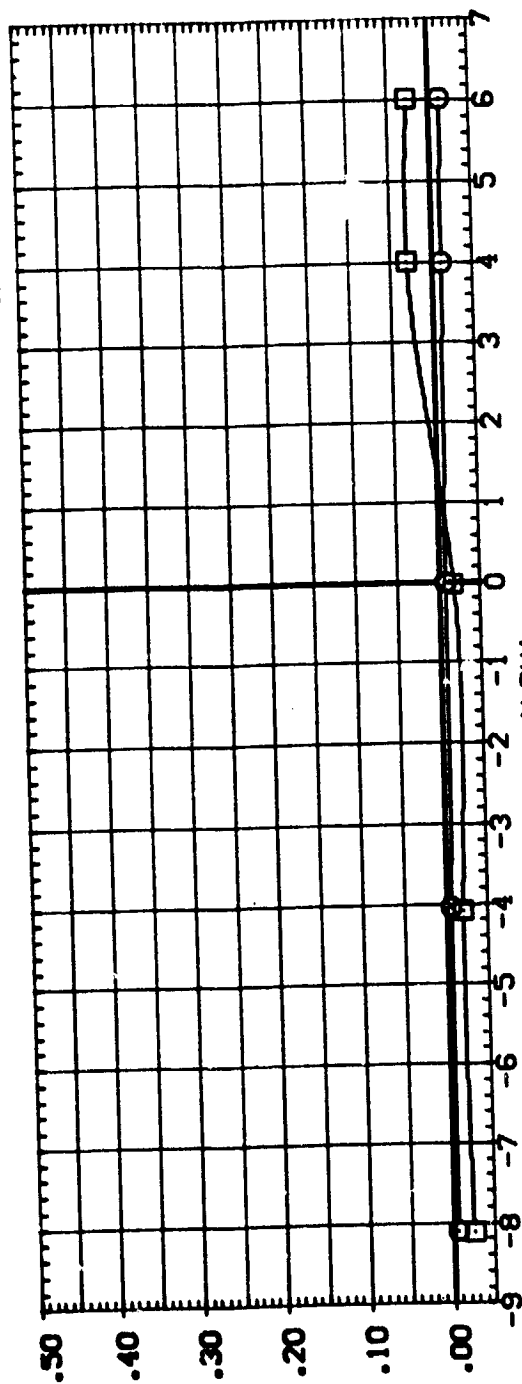
(A)MACH = 1.20



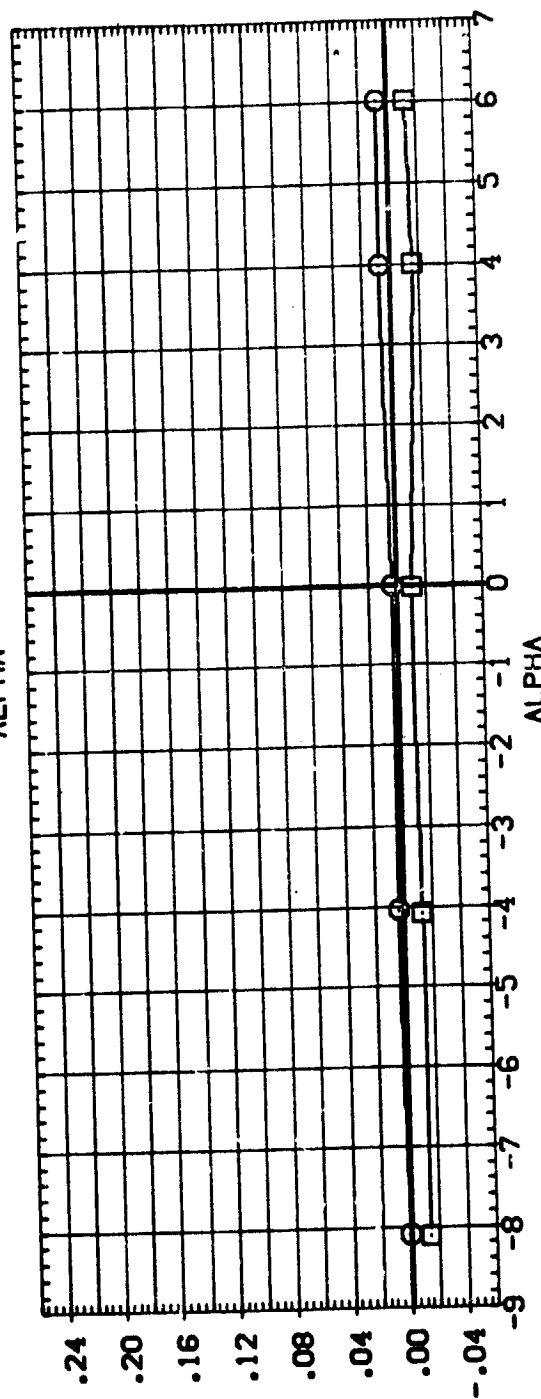
DATA SET SYMBL. CONFIGURATION DESCRIPTION  
(05F805) □ CAL T14-053 IAS 02 ÷ T1 ÷ S1 LOWER LH MPS NOZ:  
(05F807) □ CAL T14-053 IAS 02 ÷ T1 ÷ S1 LOWER LH MPS NOZ:

POWER DPR SRPR  
.000 28.310 2.000  
1.000

REFERENCE INFORMATION  
SREF 49.4000 50.4000 50.4000  
LREF 90.7000 90.7000 90.7000  
BREF 158.0000 158.0000 158.0000  
YREF .0000 .0000 .0000  
ZREF .0000 .0000 .0000  
SCALE .0190



CL



CYN

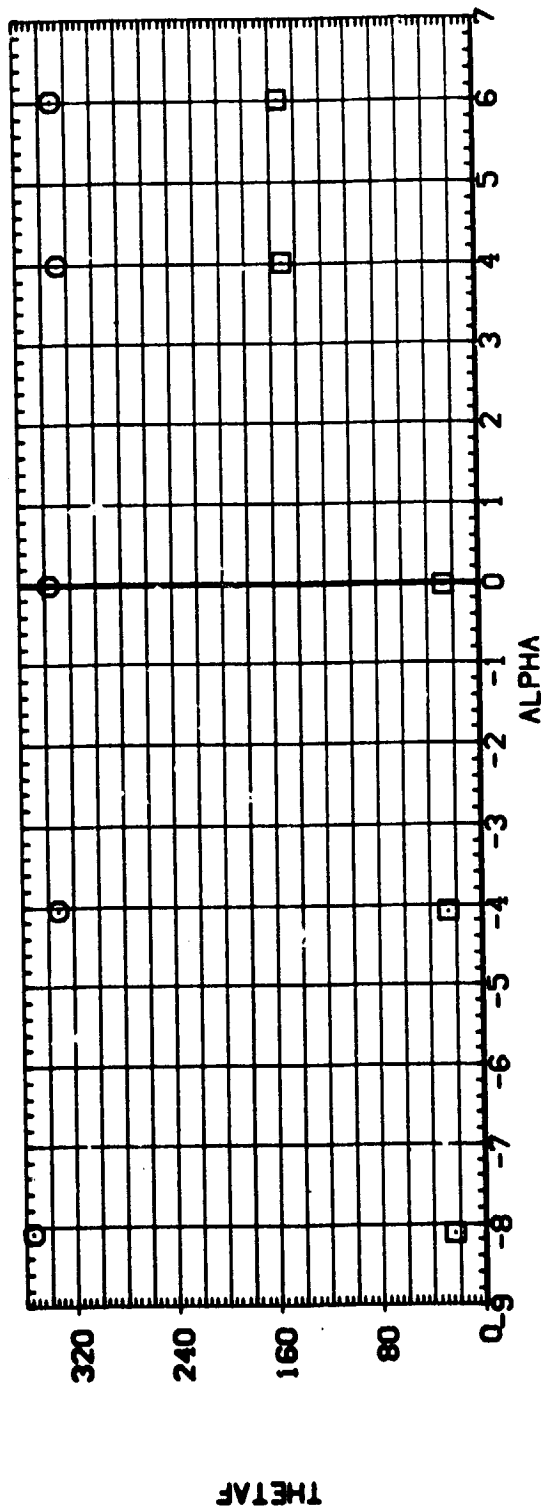
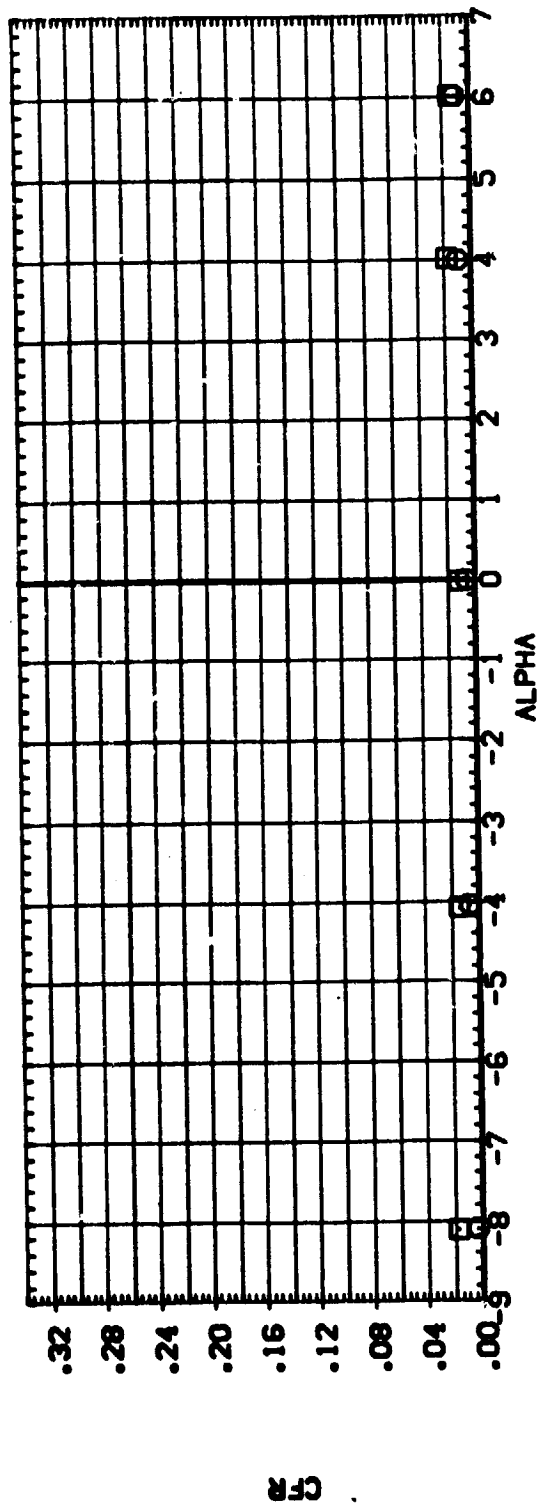
PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20



DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 \* T1 \* S1 LOWER LH MPS NOZ: CAL T14-053 IAS 02 \* T1 \* S1 LOWER LH MPS NOZ: POWER: 1.000 CWR: 28.310 SWPR: 2.020

REFERENCE INFORMATION:  
 REF: 49.4000 SQ.FT.  
 REF: 50.7000 IN-ES  
 REF: 50.7000 IN-ES  
 YPRP: 150.0000 IN-ES  
 YPRP: .0000 IN-ES  
 ZPRP: .0000 IN-ES  
 SCALE: .0150



PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

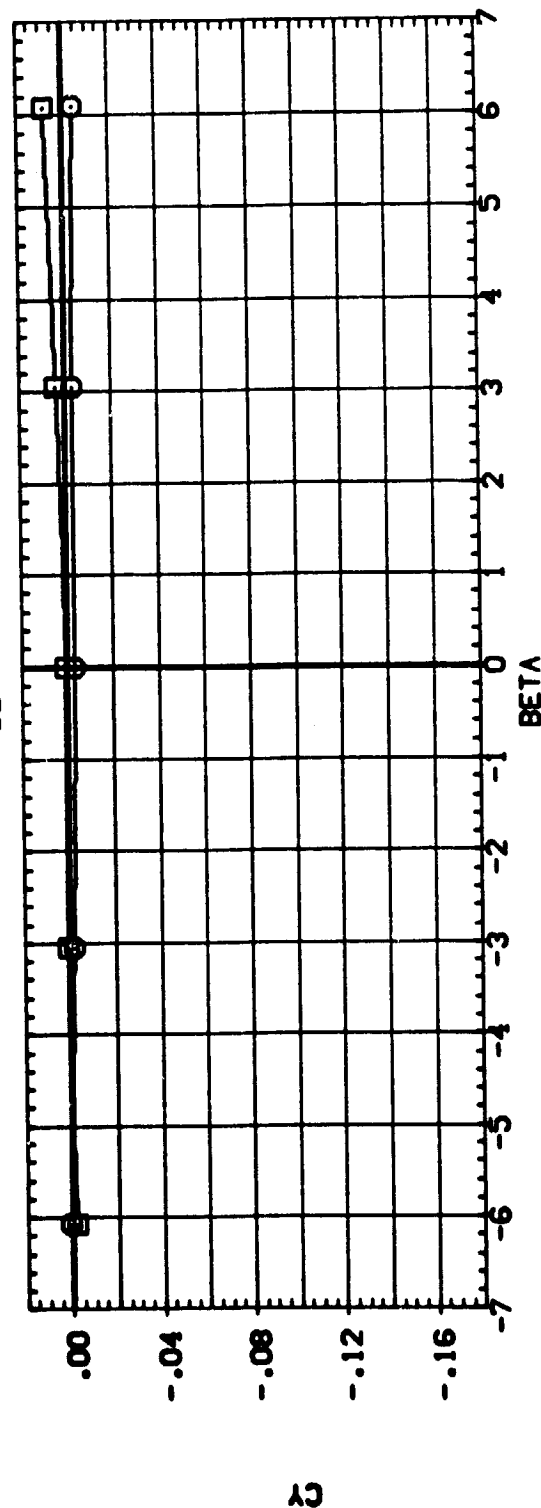
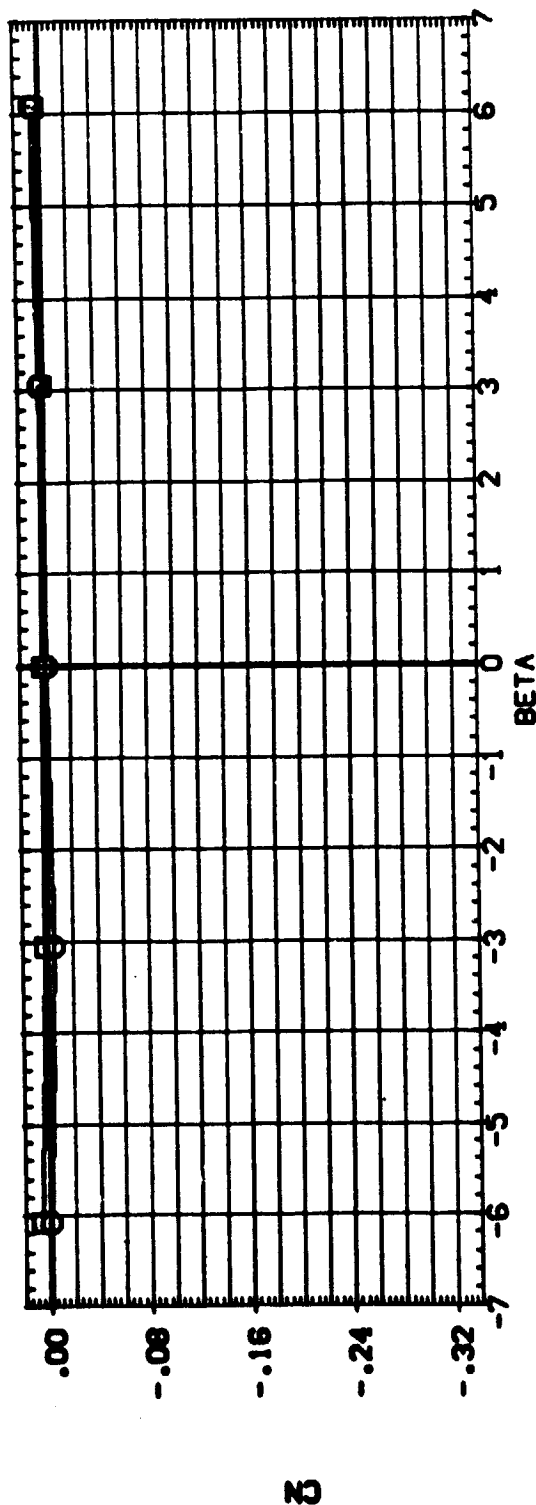






DATA SET SYMBOL: CAL T14-053 IASB 02 + T1 + S1 LOWER LH MPS NOZ.  
 (OUTP02) ☐ CAL T14-053 IASB 02 + T1 + S1 LOWER LH MPS NOZ.  
 (OUTP04) ☐

REFERENCE INFORMATION  
 SREF 49.4000 50.4000 50.4000  
 LREF 50.7000 50.7000 50.7000  
 XREF 158.0000 158.0000 158.0000  
 YREF .0000 .0000 .0000  
 ZREF .0000 .0000 .0000  
 SCALE .0150 .0150 .0150



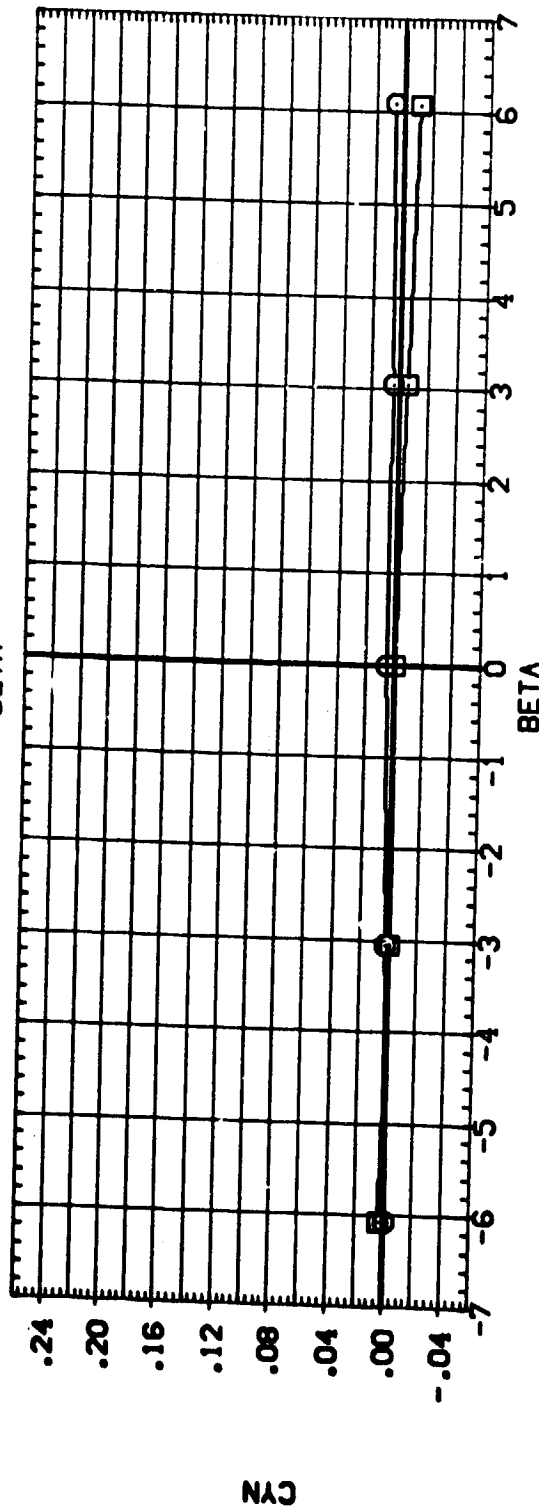
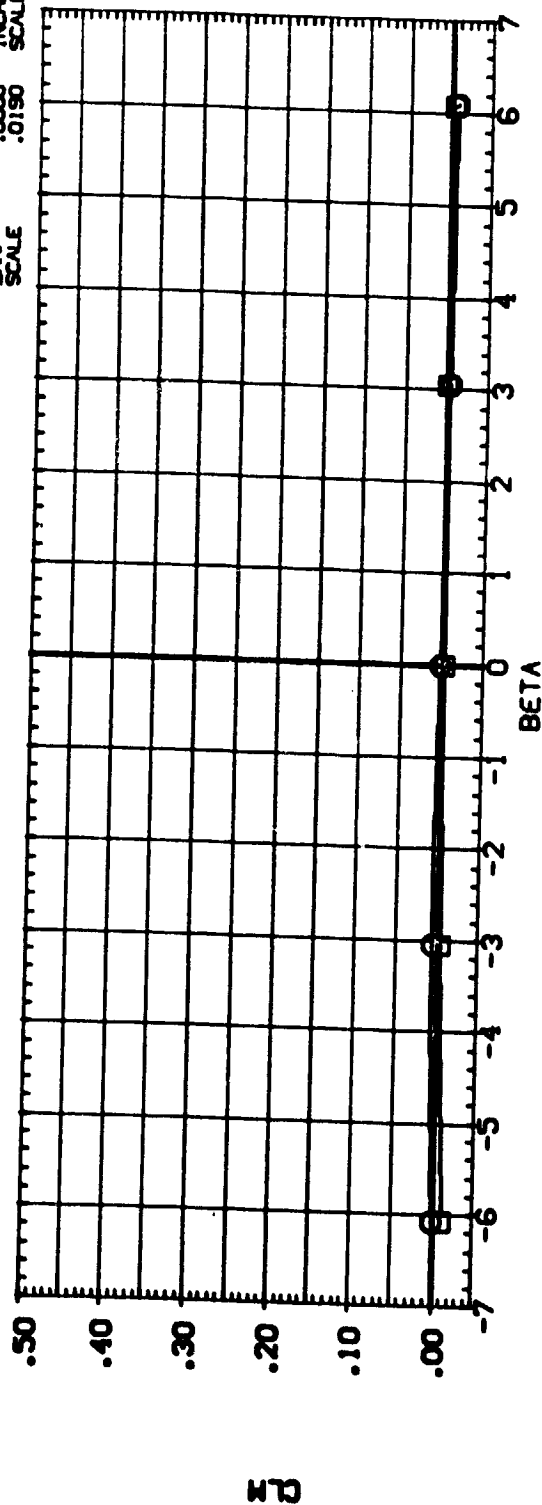
PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

(A)MACH = .90

DATA SET SYMBO. CONFIGURATION DESCRIPTION  
 (DUF802) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER LH MPS NOZ.  
 (DUF804) CAL T14-053 IAS6 Q2 + T1 + S1 LOWER LH MPS NOZ.

POWER DFR SQ-FR  
 .000 36.200 2.330

REFERENCE INFORMATION  
 SREF 49.4000 SQ.FT.  
 LREF 50.7000 INCHES  
 BREF 50.7000 INCHES  
 XMRP 158.0000 INCHES  
 YMRP .0000 INCHES  
 ZMRP .0000 INCHES  
 SCALE .0150 SCALE

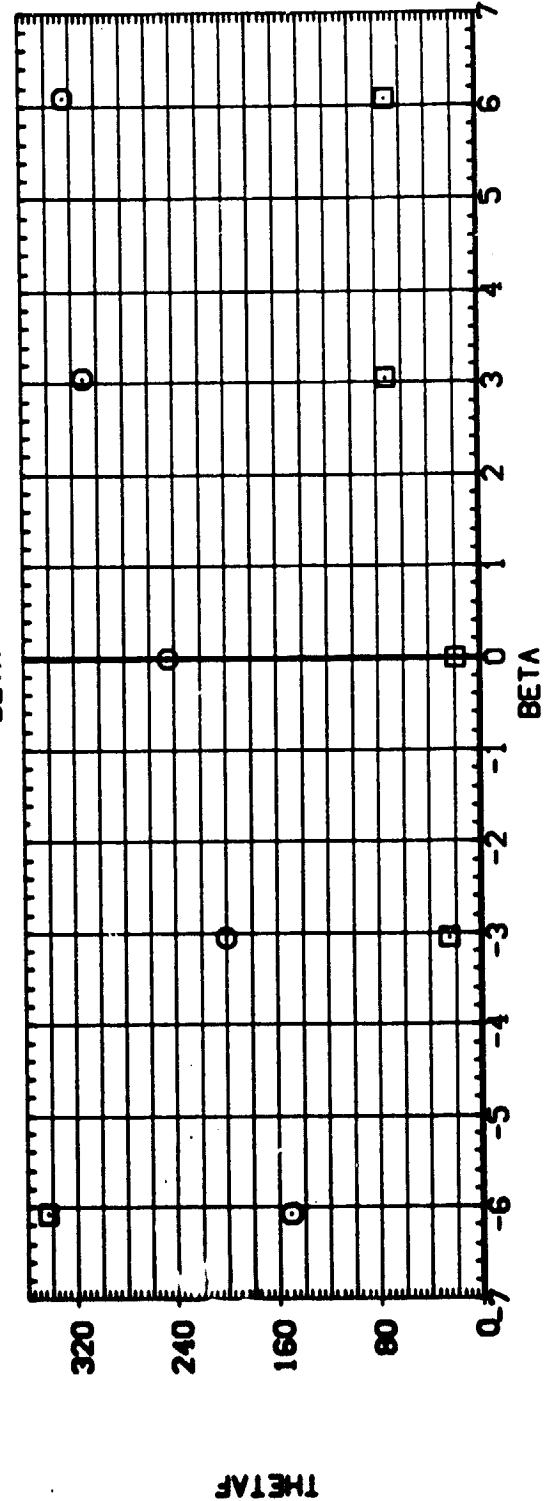
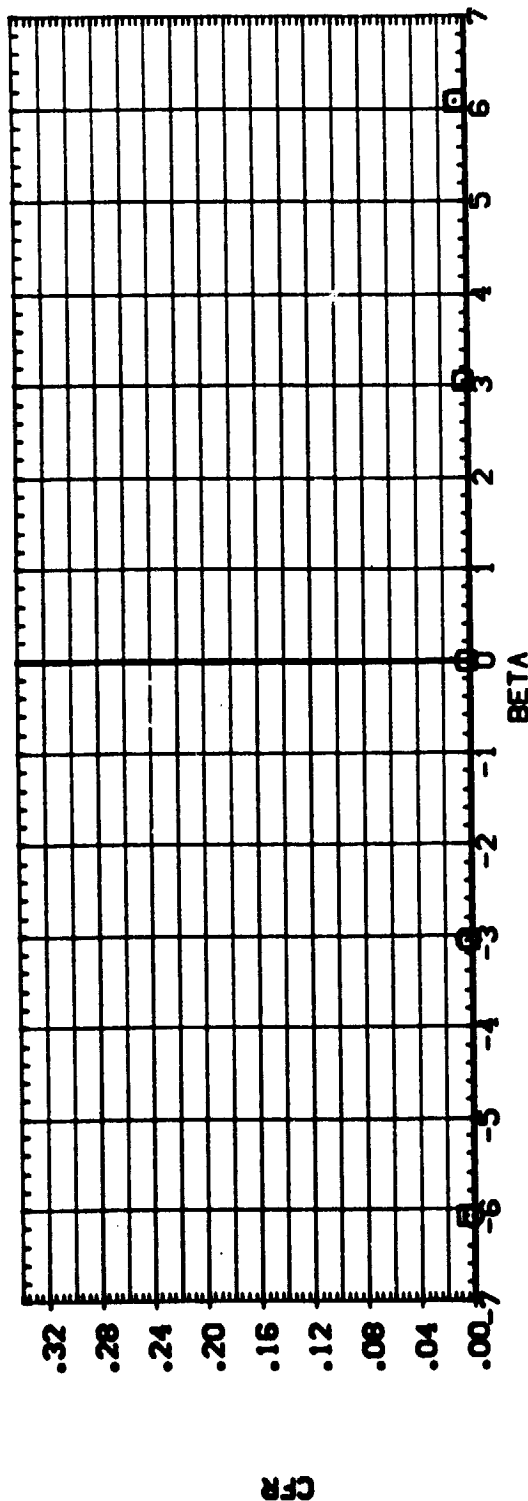


PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS  
 (A)MACH = .90



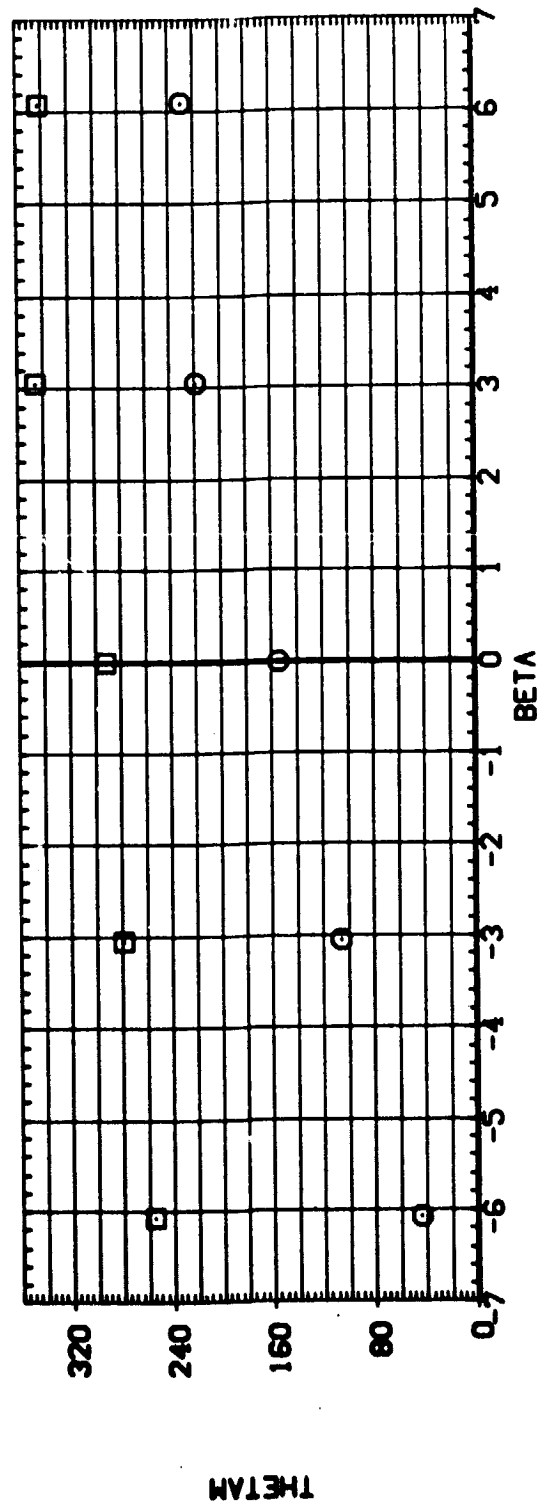
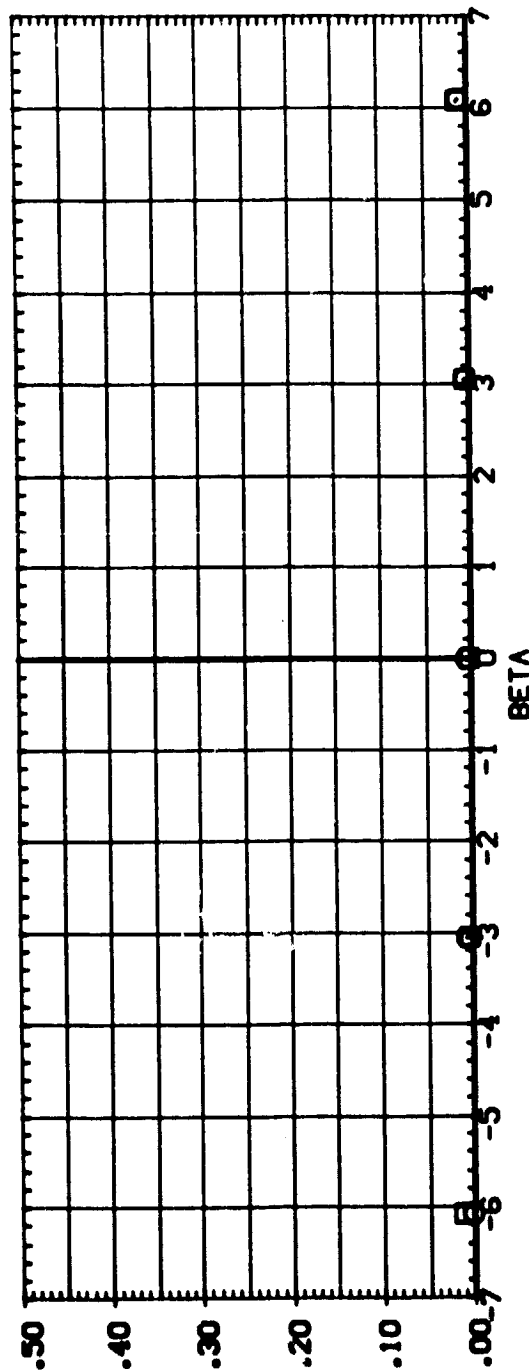
DATA SET SYMBOL: ☐ CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: 1.000 36.200 2.300  
 (DUPED) ☐ CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: 1.000 36.200 2.300  
 (DUPED) ☐ CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ: 1.000 36.200 2.300

REFERENCE INFORMATION  
 SREF 48.4000 50.4000 50.4000  
 LREF 50.7000 50.7000 50.7000  
 BREF 50.7000 50.7000 50.7000  
 YREF 158.0000 158.0000 158.0000  
 ZREF .0000 .0000 .0000  
 SCALE .0150 INCHES



PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

(A)MACH = .90

**CMR**

### PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

$$(A)_{MACH} = .90$$



DATA SET SYMB. CONFIGURATION DESCRIPTION POWER CPM SPMR

(OUTPOS) 0 CAL 114-053 1A36 02 + 11 + S1 LOWER LH MPS NOZ: 1.000 20.310 2.020

(OUTPOS) 0 CAL 114-053 1A36 02 + 11 + S1 LOWER LH MPS NOZ: 1.000 20.310 2.020

REFERENCE INFORMATION

SHEET 49.4000 50.4000 50.4000

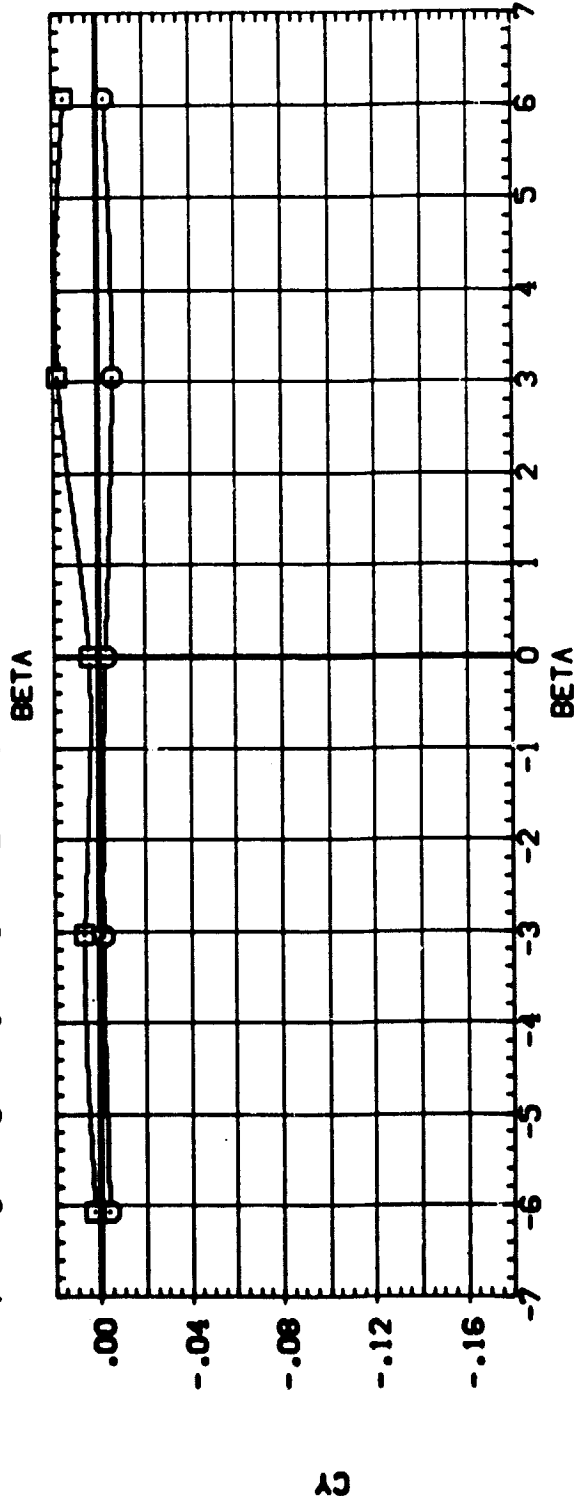
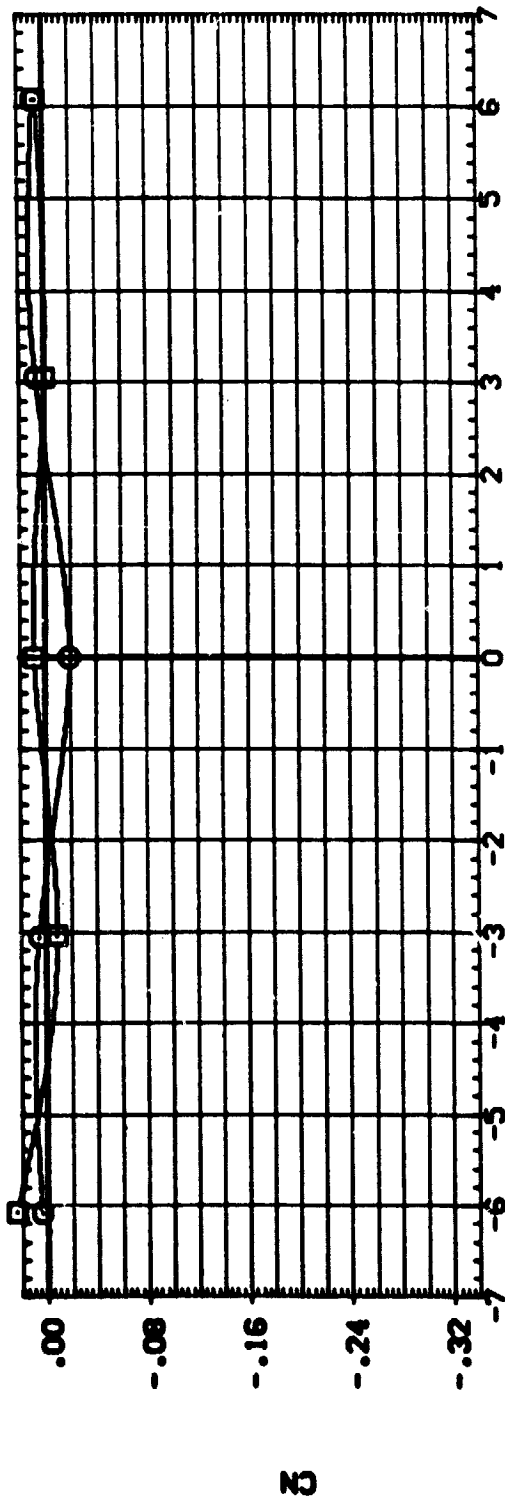
LINE 50.7000 50.7000 50.7000

REF 50.7000 50.7000 50.7000

TRIP .0000 .0000 .0000

ZAMP .0000 .0000 .0000

SCALE .0150 .0150 .0150



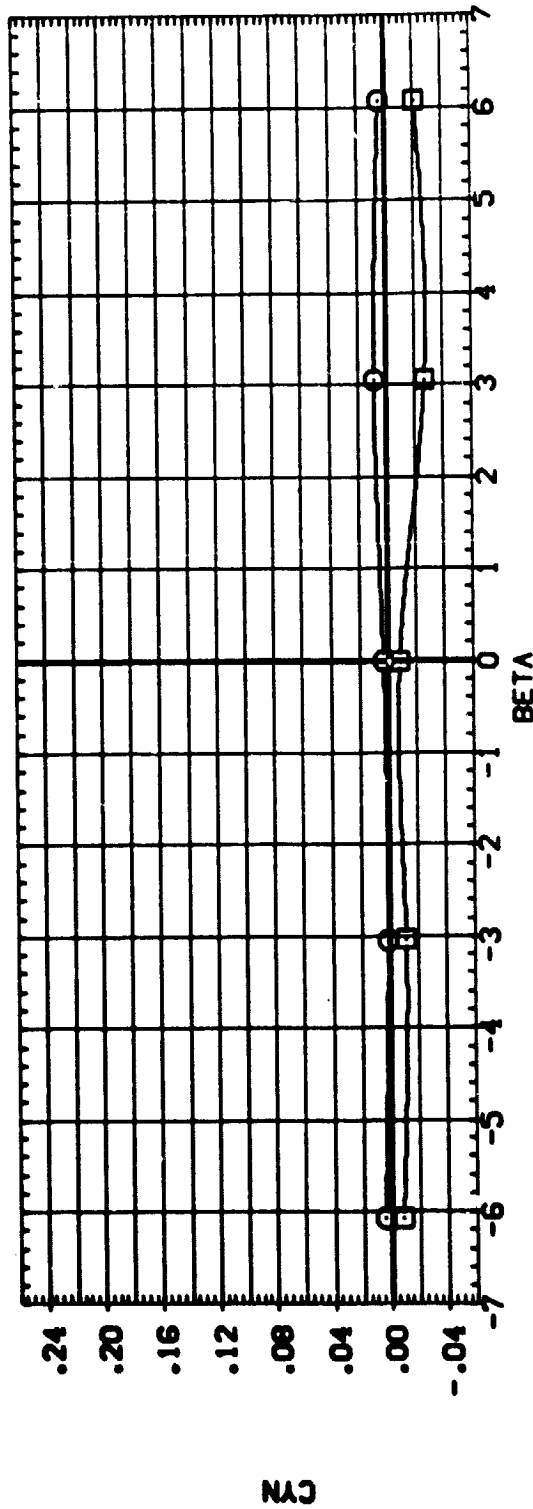
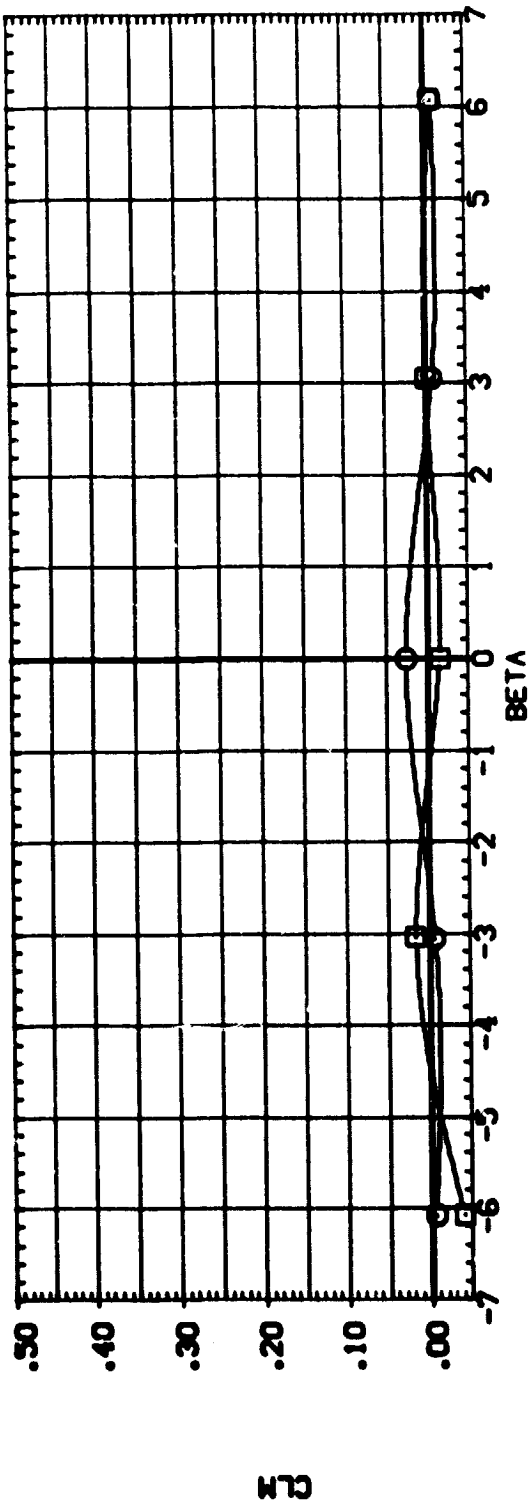
PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

DATA SET SYMBL. CONFIGURATION DESCRIPTION  
 (OUTPUS) CAL 114-053 1A36 02 : T1 : S1 LOWER LH MPS NOZ:  
 (OUTPUS) CAL 114-053 1A36 02 : T1 : S1 LOWER LH MPS NOZ:

POWER CPM SPMR  
 .000 28.310 2.020  
 1.000

REFERENCE INFORMATION  
 SREF 49.4000 50.000  
 LREF 50.7000 INOES  
 BREF 50.7000 INOES  
 XREF 158.0000 INOES  
 YREF .0000 INOES  
 ZREF .0000 INOES  
 SCALE .0150

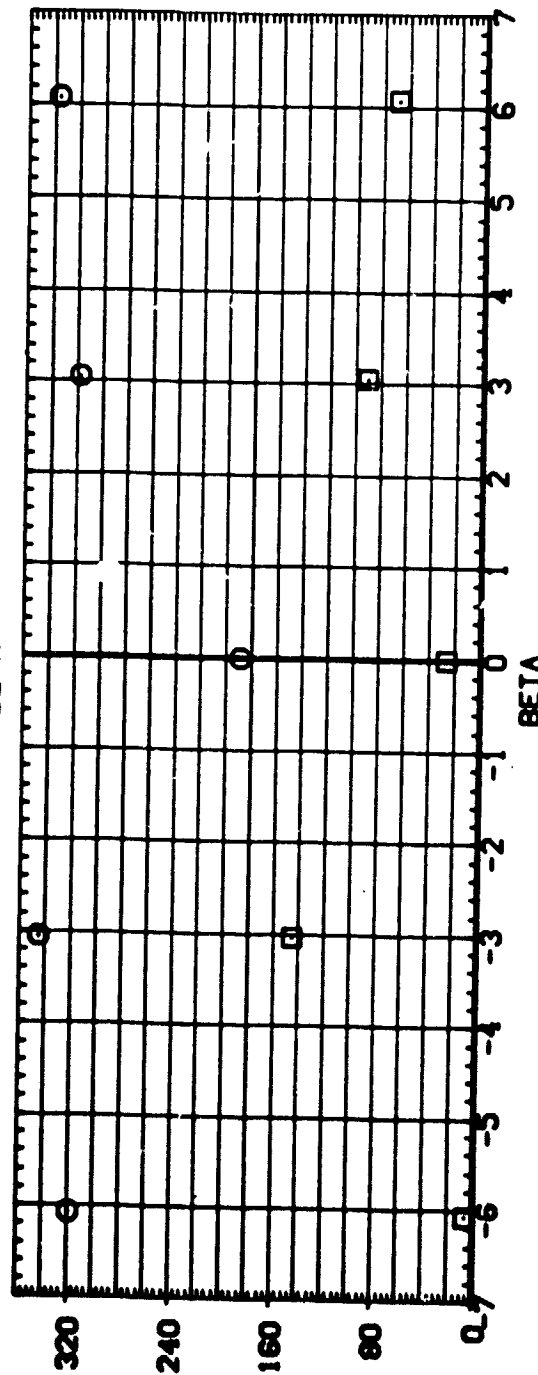
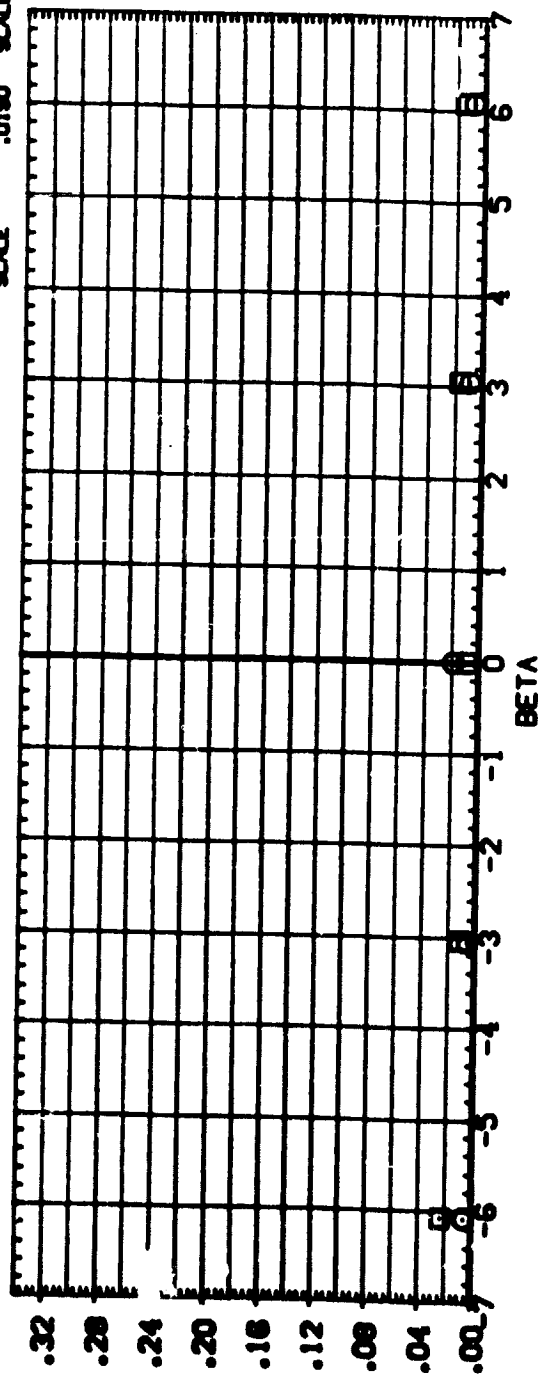


PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS  
 (A)MACH = 1.20



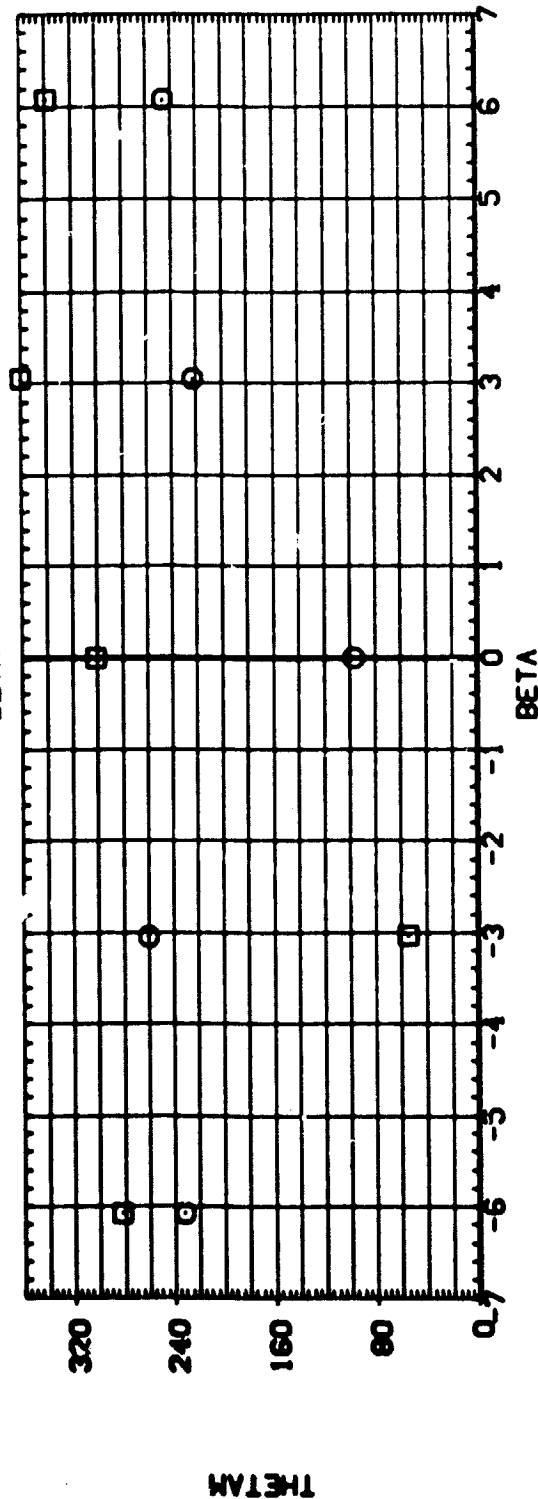
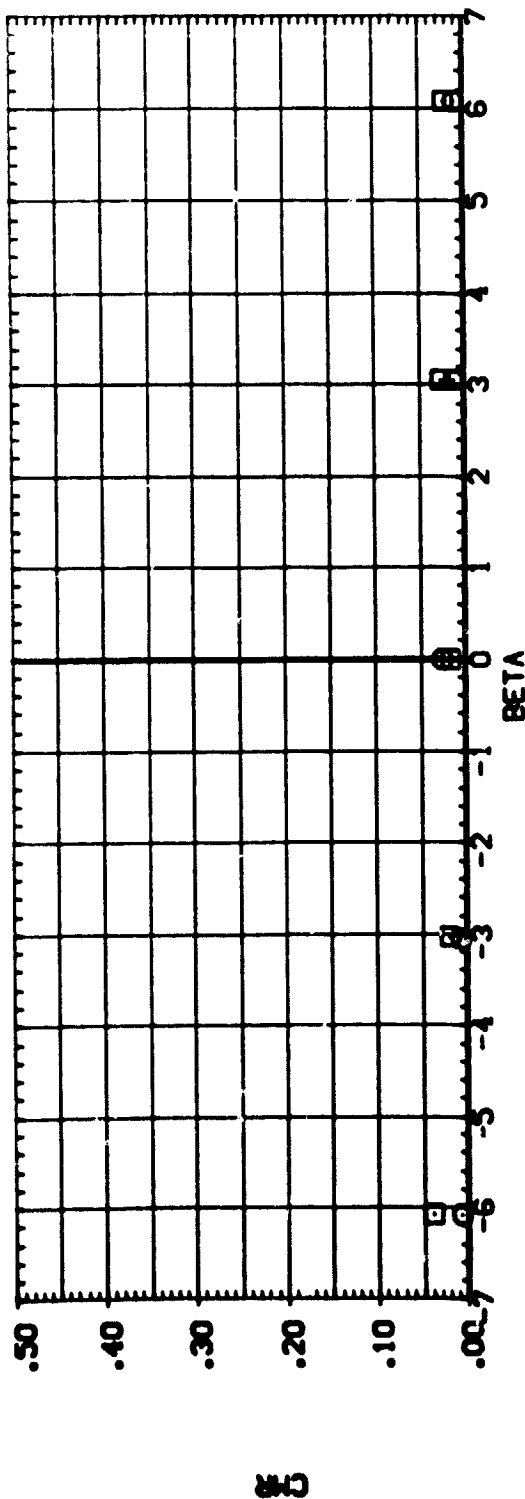
DATA SET SPEED. CONFIGURATION DESCRIPTION  
 {BUTTER} 0 CAL 114-888 1A38 00 : 71 : 81 LOWER LH MPS NOZ:  
 REFERENCE INFORMATION  
 SPEC 49.4000 88.1 FT  
 LAMP 50.7000 INDOCS  
 SPEC 50.7000 INDOCS  
 XRAY 150.0000 INDOCS  
 YRAY .0000 INDOCS  
 ZRAY .0000 INDOCS  
 SCALE .0180 INDOCS

POWER GPR SWPR  
 1.000 20.310 2.020



PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS  
 (A)MACH = 1.20

DATA SET SYMBOL: □  
 CONFIGURATION DESCRIPTION: CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ;  
 CAL T14-053 IAS 02 + T1 + S1 LOWER LH MPS NOZ;  
 POWER: 1.000  
 QPR: 28.310  
 SPPR: 2.020  
 REFERENCE INFORMATION:  
 SREF: 49.4000 50.4000 50.4000  
 LREF: 90.7000 90.7000 90.7000  
 BREF: 90.7000 90.7000 90.7000  
 XREF: 158.0000 158.0000 158.0000  
 YREF: .0000 .0000 .0000  
 ZREF: .0000 .0000 .0000  
 SCALE: .0150 .0150 .0150



PLUME EFFECT ON LOWER LH MPS NOZZLE TOTAL LOADS

(A) MACH = 1.20

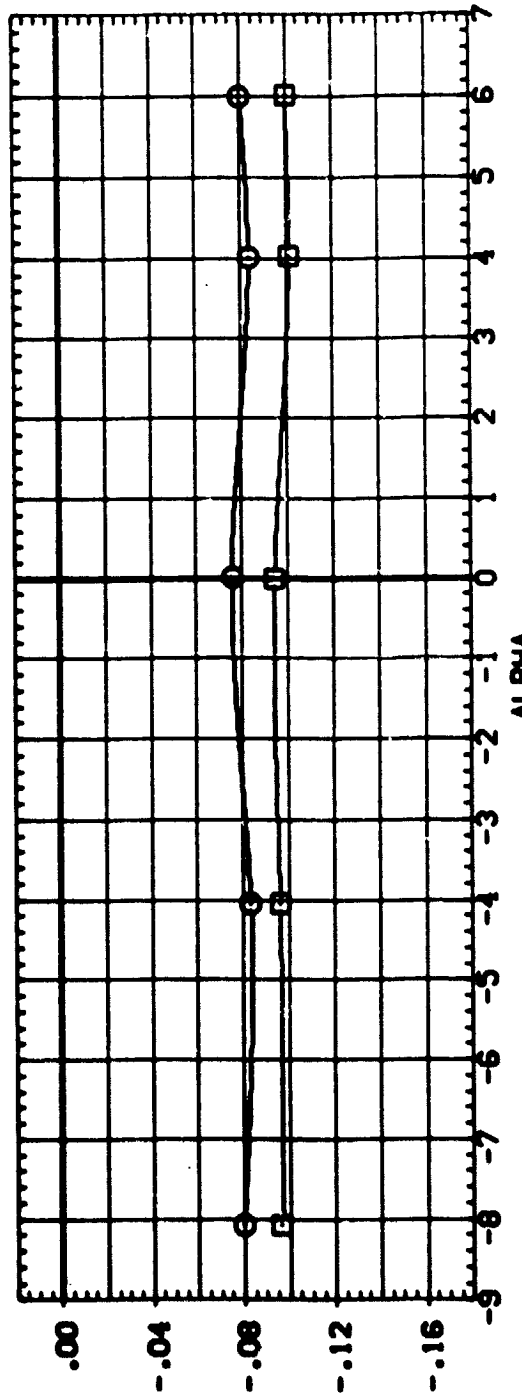
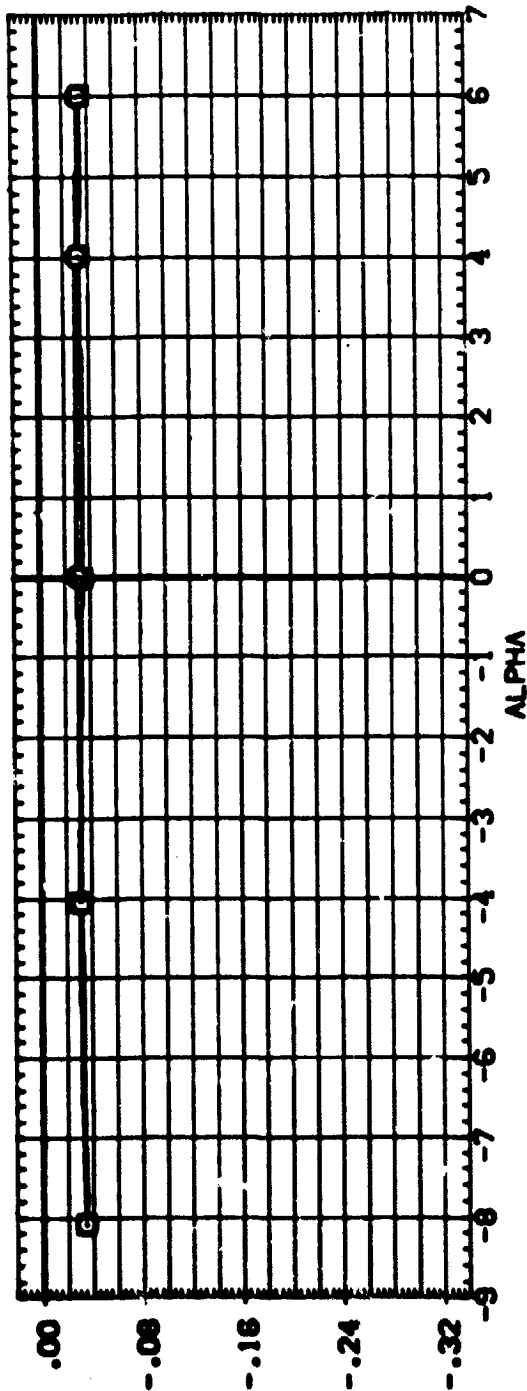




DATA SET SHEET. CONFIGURATION DESCRIPTION

{BUP001} 8 CAL T14-003 IAS 83 : T1 : S1 LOWER RH MPS NOZ. 1.000 38.200 2.300  
 {BUP001} 8 CAL T14-003 IAS 83 : T1 : S1 LOWER RH MPS NOZ. 1.000 38.200 2.300

REFERENCE INFORMATION  
 SPEC 48.000 99.00  
 LIFT 50.000 100.00  
 DRAG 50.000 100.00  
 YAW 150.000 100.00  
 ZAW 150.000 100.00  
 SCALE .0150



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

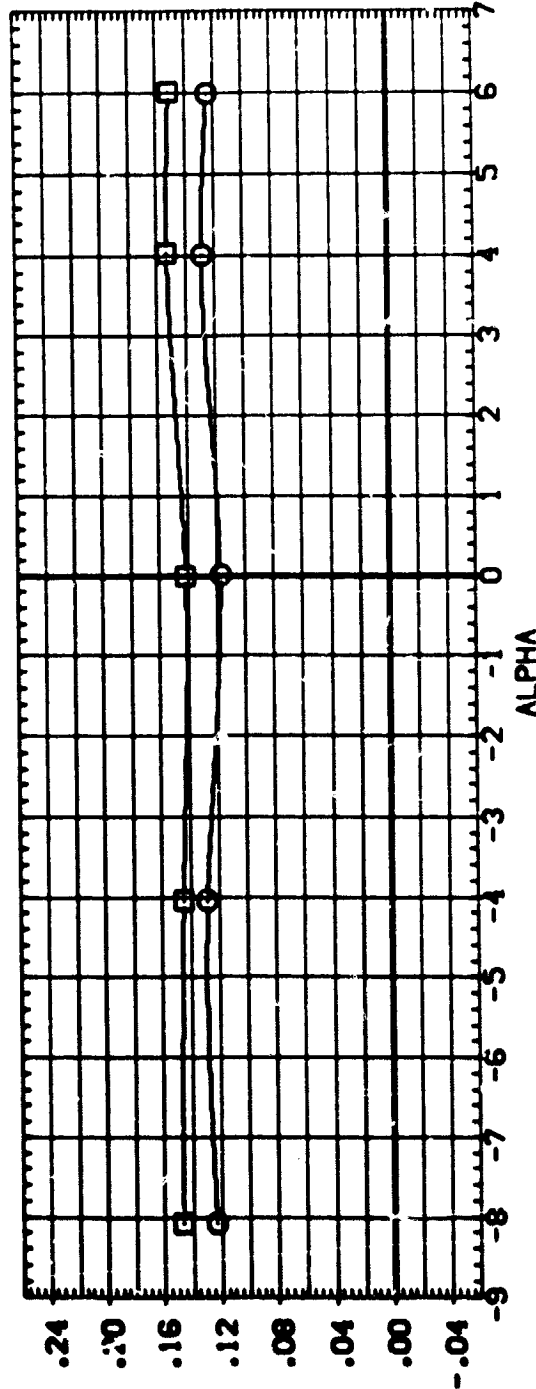
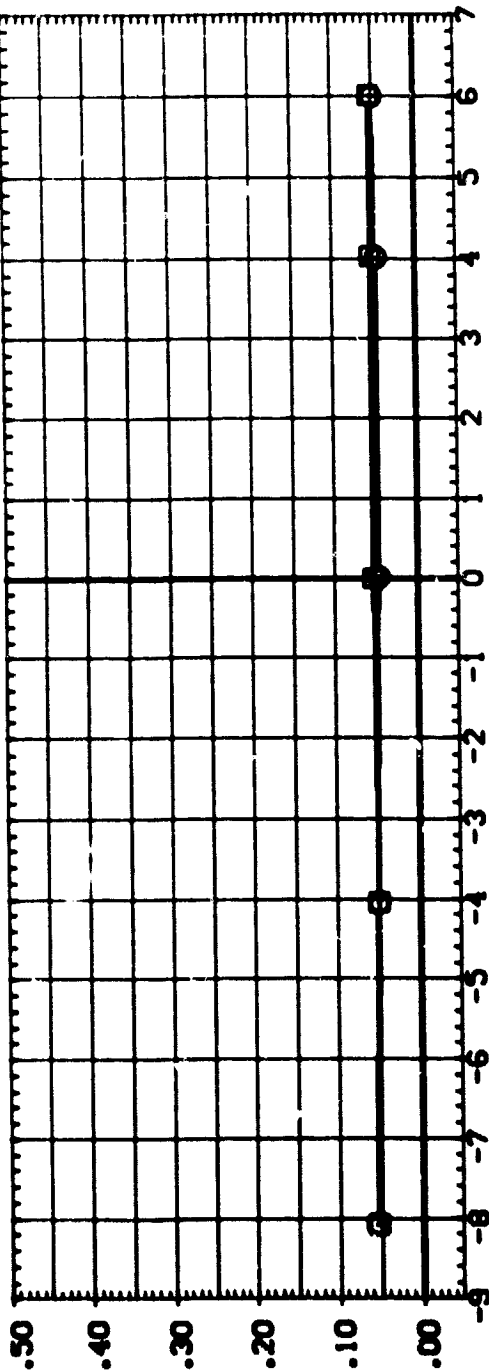
(A)MACH = .90

DATA SET 51003  
 (010001) 8  
 (010003) 8

CONFIGURATION DESCRIPTION  
 CAL T14-053 IAS 02 \* T1 \* S1 LOWER RH MPS NOZ.  
 CAL T14-053 IAS 02 \* T1 \* S1 LOWER RH MPS NOZ.

POWER DFR SFR  
 .000 36.200 2.300  
 1.000

REFERENCE INFORMATION  
 SREF 49.4000 SQ.FT.  
 LREF 50.7000 INCHES  
 BREF 50.7000 INCHES  
 XREF 158.0000 INCHES  
 YREF .0000 INCHES  
 ZREF .0000 INCHES  
 SCALE .0190 INCHES



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

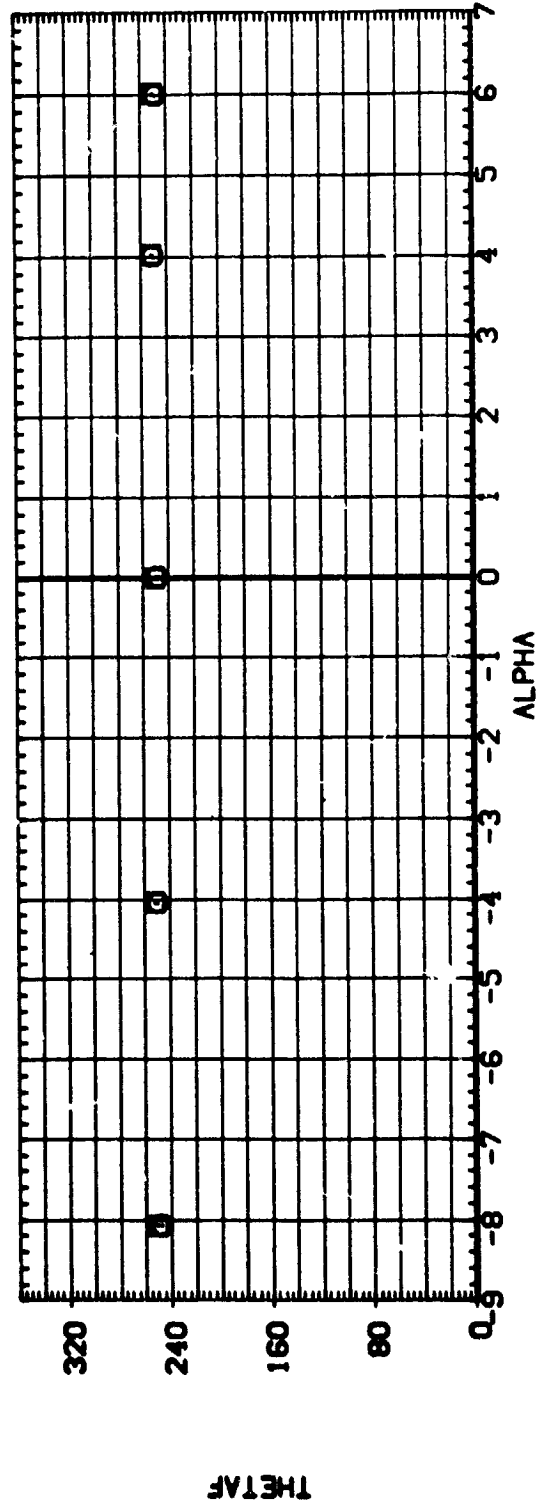
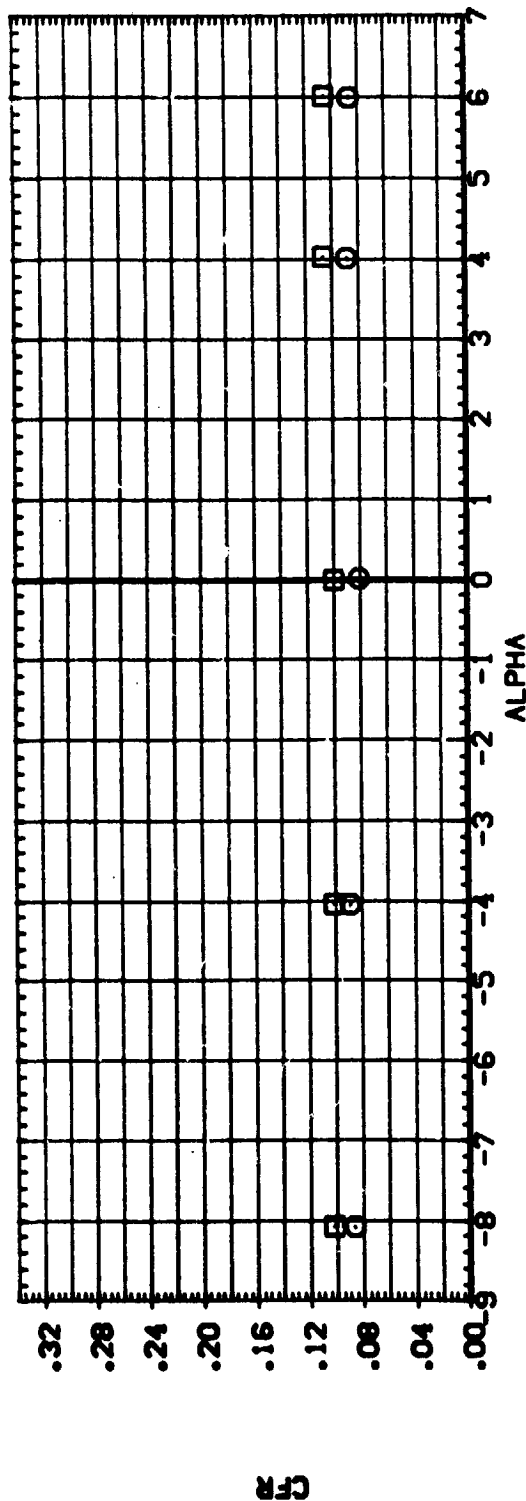
(A)MACH = .90



DATA SET SW63. CONFIGURATION DESCRIPTION  
 (0LP001) 8 CAL 114-053 1A35 02 + T1 + S1 LOWER RH MPS NOZ.  
 (0LP003) CAL 114-053 1A35 02 + T1 + S1 LOWER RH MPS NOZ.

POWER CWR SWPR  
 .000 36.200 2.330  
 1.000

REFERENCE INFORMATION  
 SREF 49.4000 50. FT.  
 LREF 90.7000 INCHES  
 BREF 90.7000 INCHES  
 158 INCHES  
 XTRP .0000 INCHES  
 YTRP .0000 INCHES  
 ZTRP .0000 INCHES  
 SCALE .0150



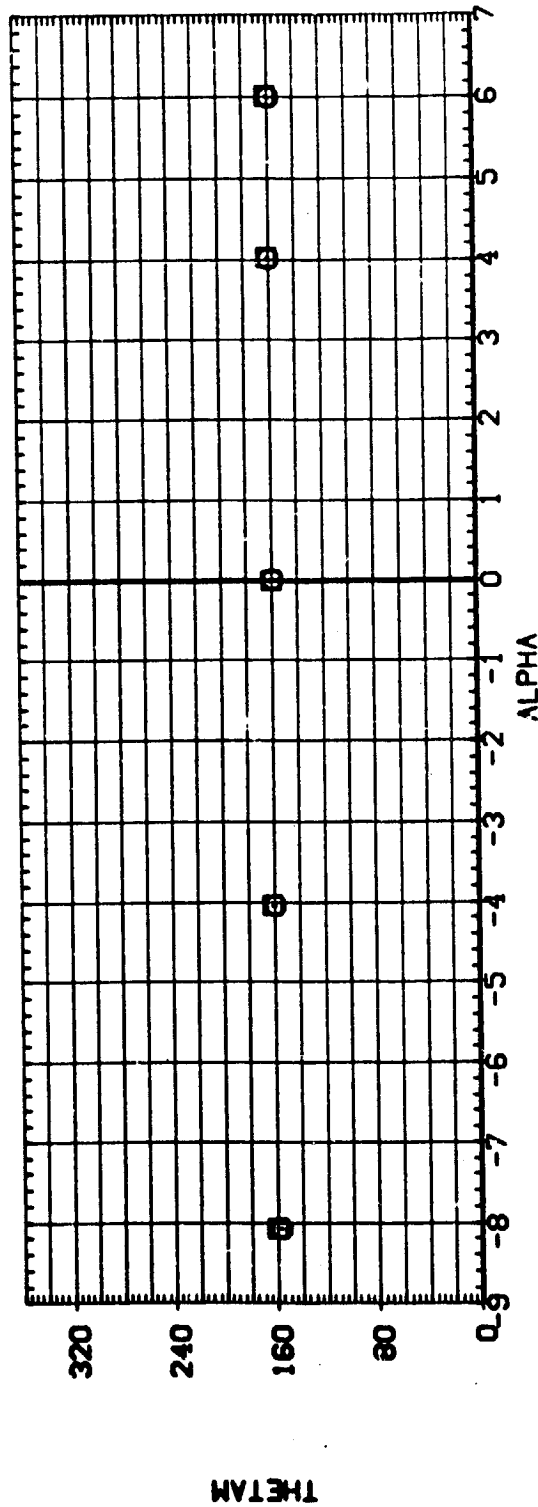
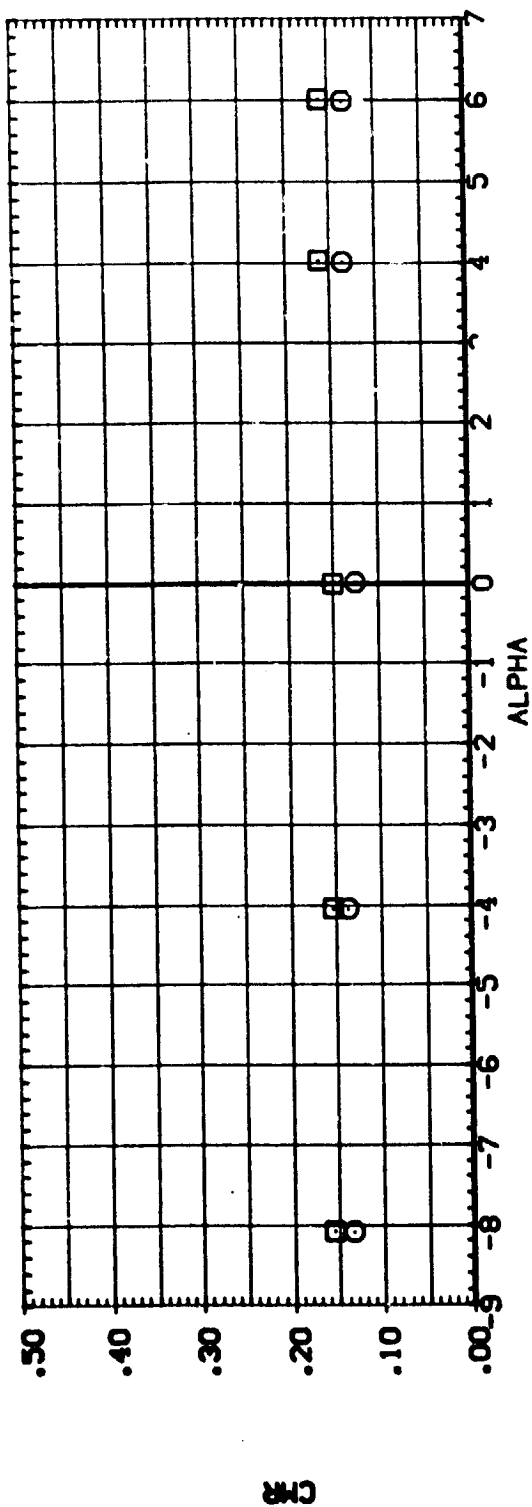
PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = .90

DATA SET SYMBOL: CAL T14-053  
 CONFIGURATION DESCRIPTION: CAL T14-053  
 NOZ: 11

POWER: 1.000  
 QPR: 36.200  
 SRRPR: 2.300

REFERENCE INFORMATION:  
 SREF: 49.4000 SQ.FT.  
 JREF: 50.7000 INCHES  
 BREF: 50.7000 INCHES  
 XREF: 158.0000 INCHES  
 YREF: 0.0000 INCHES  
 ZREF: 0.0000 INCHES  
 SCALE: .0190



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

CAJ MACH = .90



### CONFIGURATION DESCRIPTION



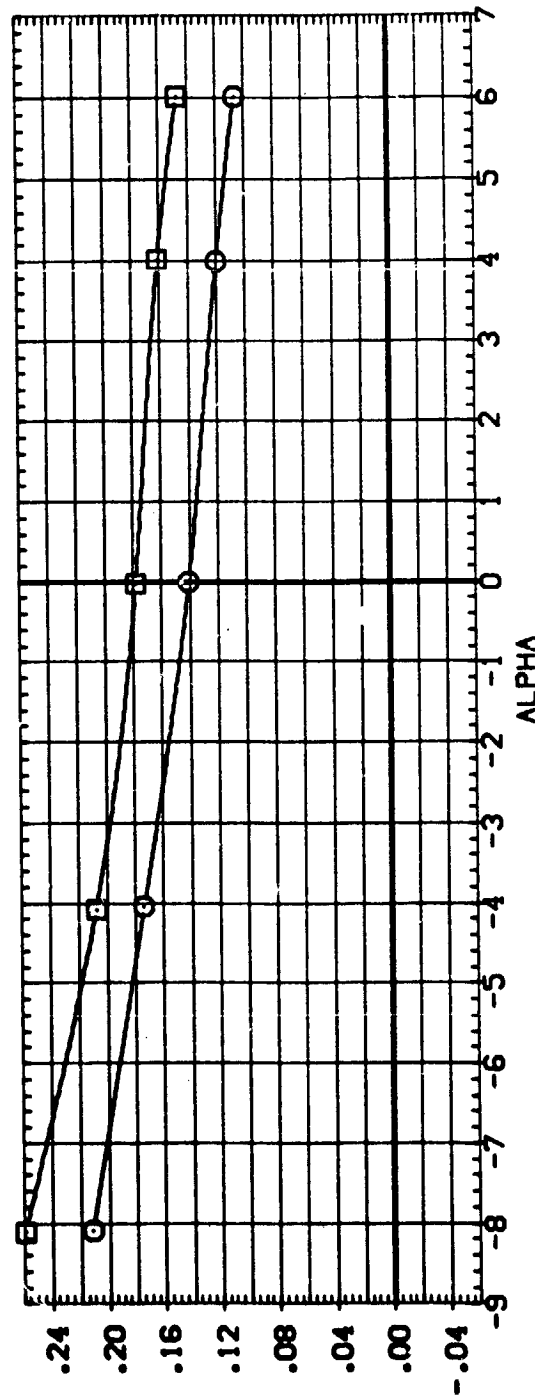
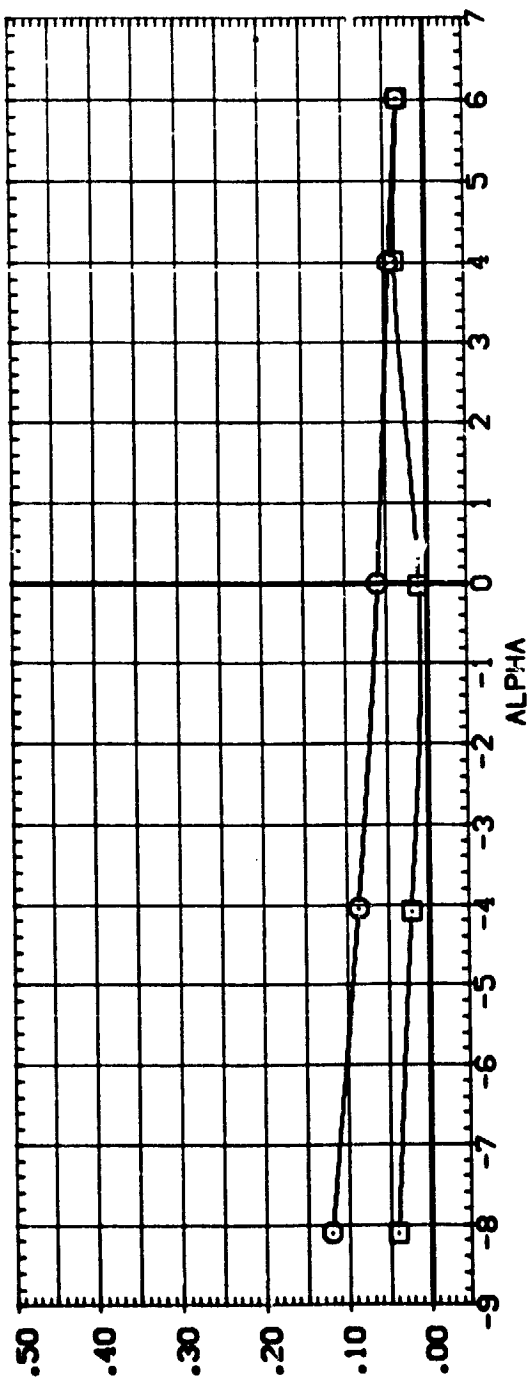
**(A)MACH = 1.20**

DATA SET SYMBOL: (DUP005)  
 (DUP007)

CONFIGURATION DESCRIPTION:  
 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.  
 CAL T14-053 IAS6 02 + T1 + S1 LOWER RH MPS NOZ.

POWER: 1.000  
 QPR: 28.310  
 SRPR: 2.020

REFERENCE INFORMATION:  
 SRIF: 49.4000 SQ.FT.  
 LRIF: 50.7000 INCHES  
 BRIF: 50.7000 INCHES  
 XMRP: 158.0000 INCHES  
 YMRP: .0000 INCHES  
 ZMRP: .0000 INCHES  
 SCALE: .0150



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

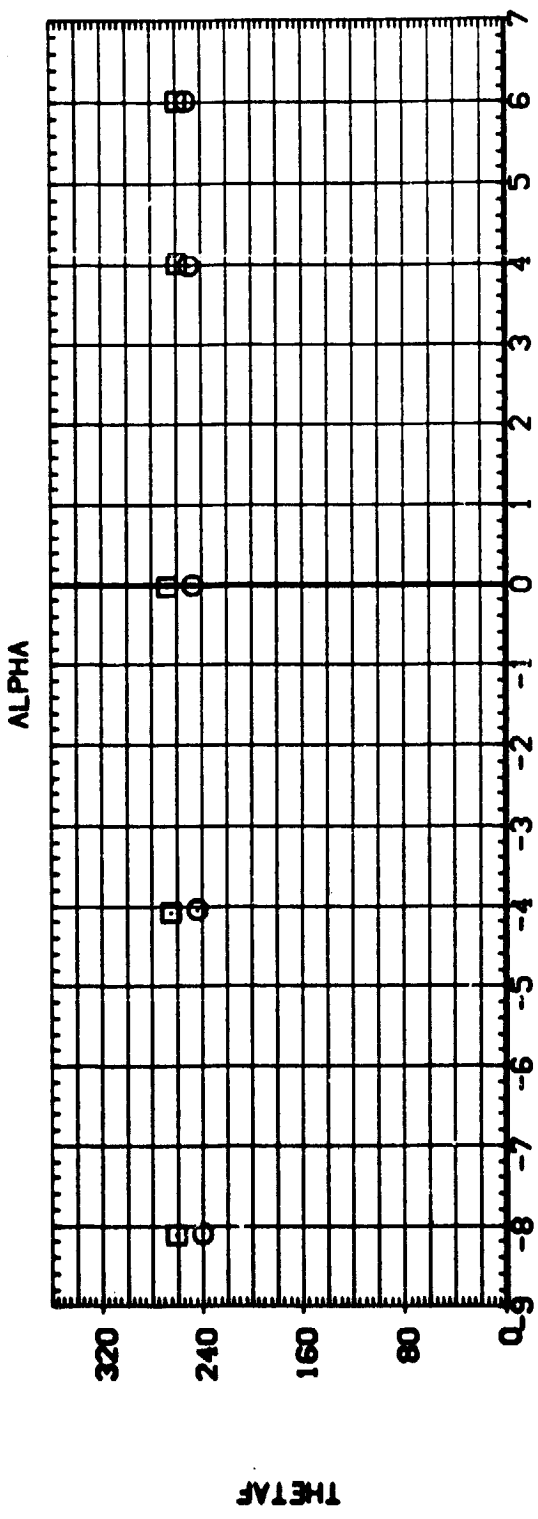
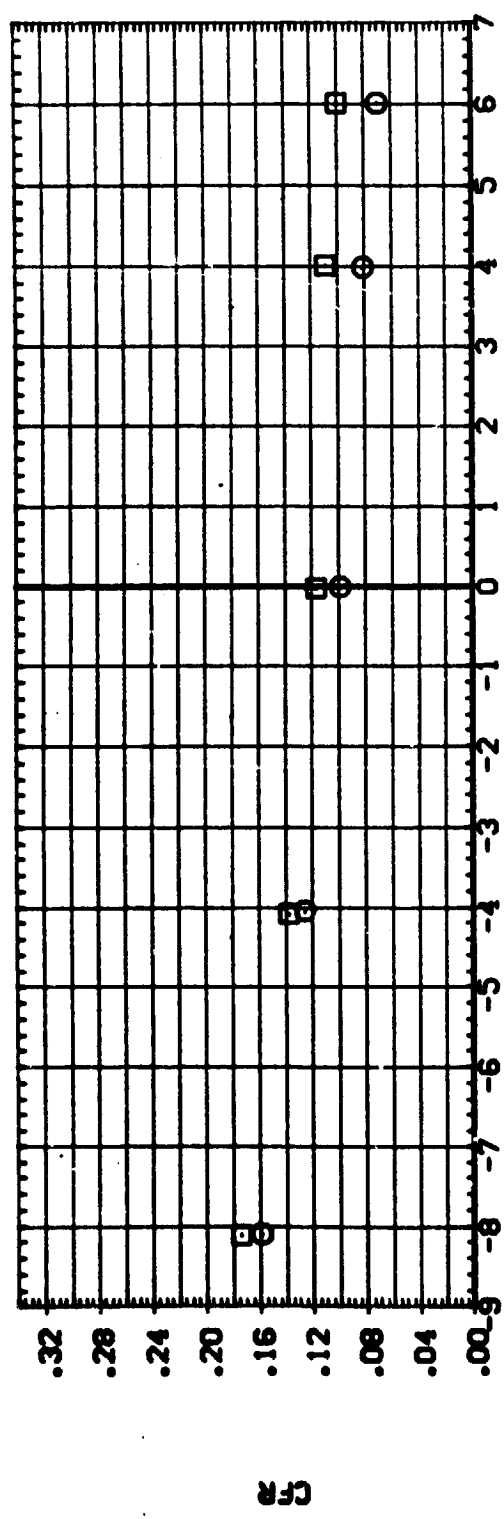
(A)MACH = 1.20



DATA SET SYMBOL: **0** CONFIGURATION DESCRIPTION: **CAL 114-053 1A36 C2 + T1 + S1 LOWER RH MPS NOZ.**  
**(DUFOUR)** **(DUFOUR)** **CAL 114-053 1A36 C2 + T1 + S1 LOWER RH MPS NOZ.**

POWER: **0.000** CFR: **28.310** SHPR: **2.020**

REFERENCE INFORMATION:  
 SREF: **49.4000** SQ.FT.  
 LREF: **50.7000** INCHES  
 BREF: **50.7000** INCHES  
 XREF: **158.0000** INCHES  
 YREF: **158.0000** INCHES  
 ZREF: **158.0000** INCHES  
 SCALE: **0.0150** SCALE



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

DATA SET SYMBOL: (DUF005) (DUF007) □

CONFIGURATION DESCRIPTION: CAL T14-053 (A36 02 + T1 + S1) LOWER RH MPS NOZ: CAL T14-053 (A36 02 + T1 + S1) LOWER RH MPS NOZ:

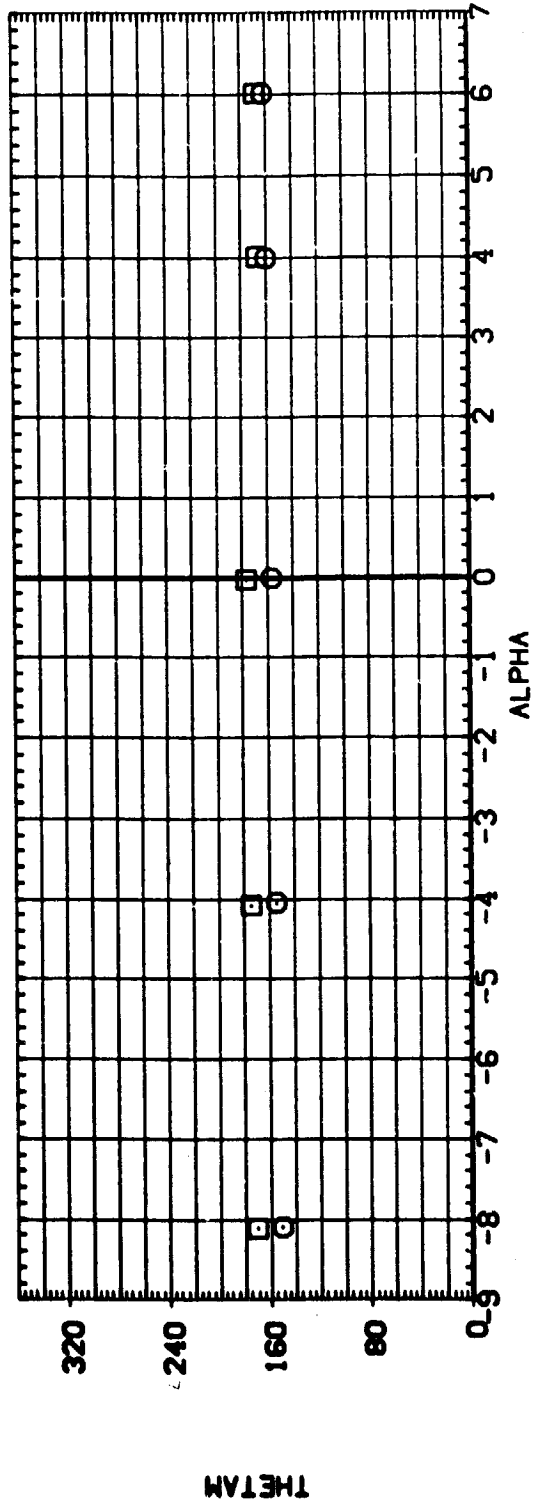
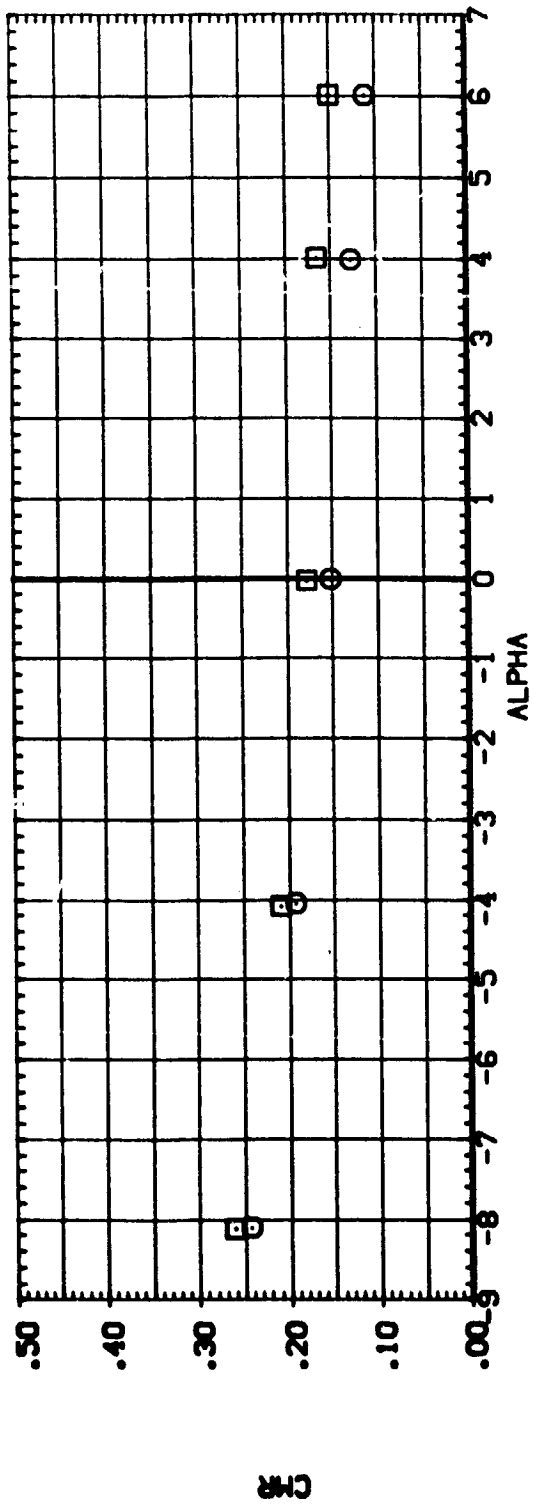
POWER: 1.000

OPR: 28.310

SRMPR: 2.020

REFERENCE INFORMATION:

SREF	49.4000	50.4000	50.4000
LREF	90.7000	90.7000	90.7000
BREF	90.7000	90.7000	90.7000
YMRP	158.0000	158.0000	158.0000
ZMRP	.0000	.0000	.0000
SCALE	.0190	.0190	.0190



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20



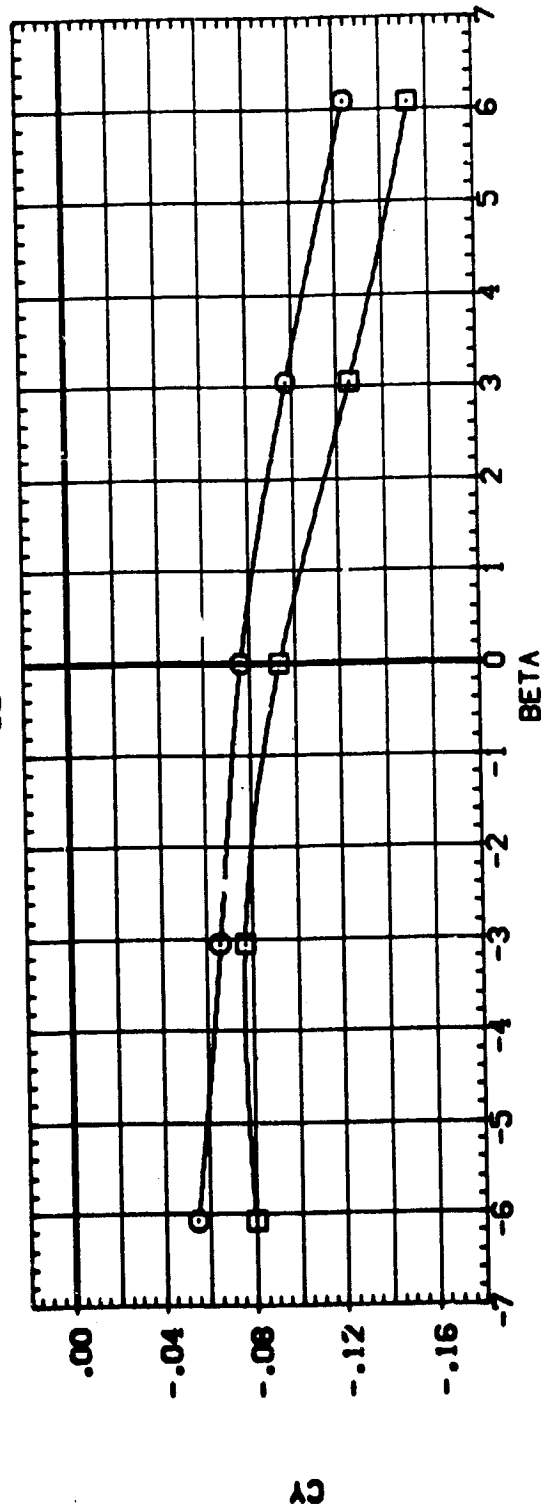
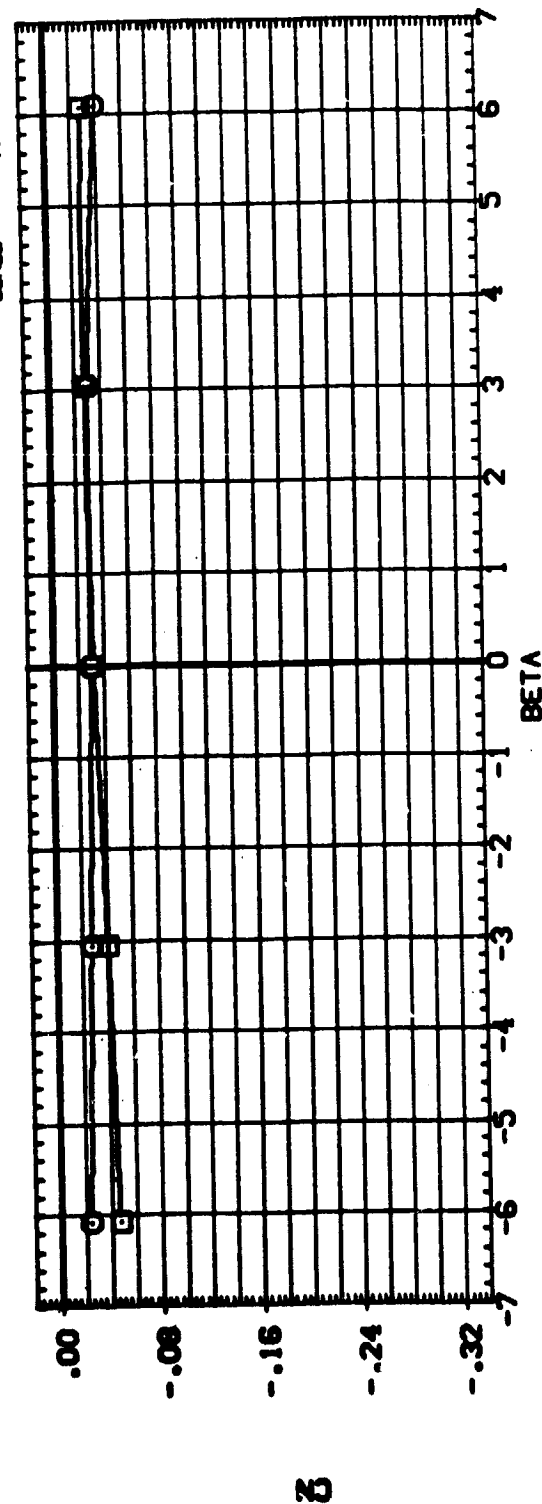


DATA SET 50002.0  
 (OUTP02) 8  
 (OUTP03) 8  
 (OUTP04) 8

CONFIGURATION DESCRIPTION  
 CAL T14-083 (A38 02 + T1) + S1 LOWER RH MPS NOZ.  
 CAL T14-083 (A38 02 + T1) + S1 LOWER RH MPS NOZ.

POWER DPR SPPR  
 .000 38.200 2.330  
 1.000 38.200 2.330

REFERENCE INFORMATION  
 REF 49 4000 50.00  
 LREF 50 7000 100.00  
 BREF 50 7000 100.00  
 XREF 158 0000 100.00  
 YREF 0000 100.00  
 ZREF 0000 100.00  
 SCALE .0150

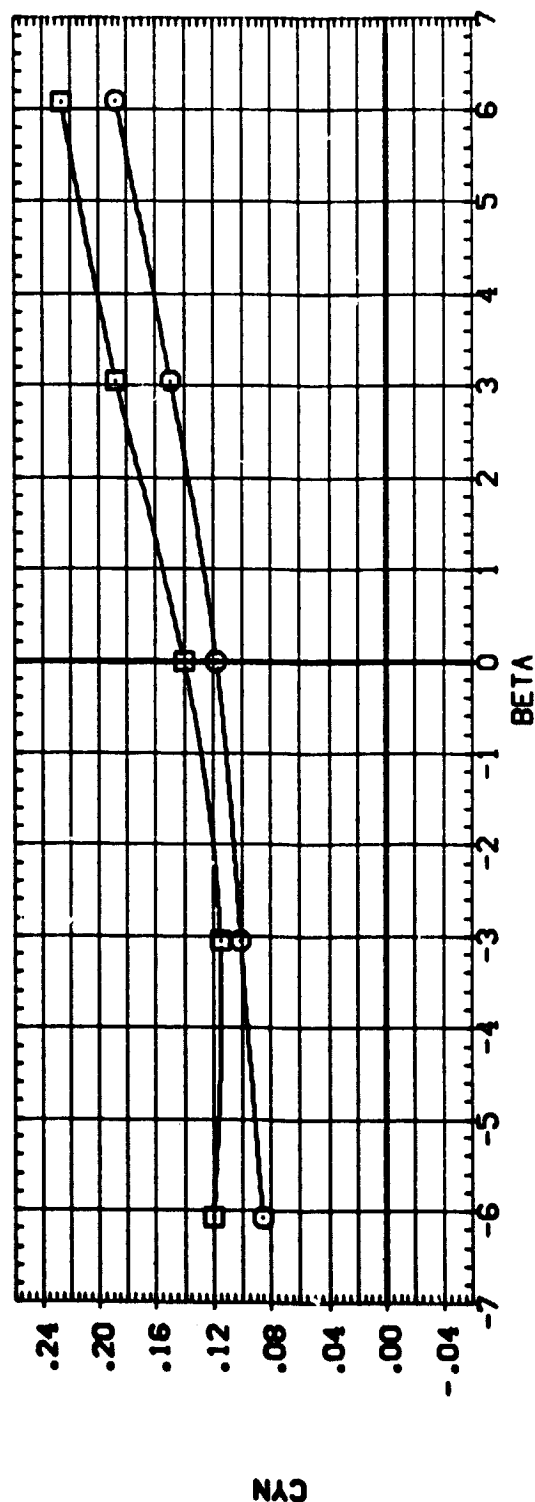
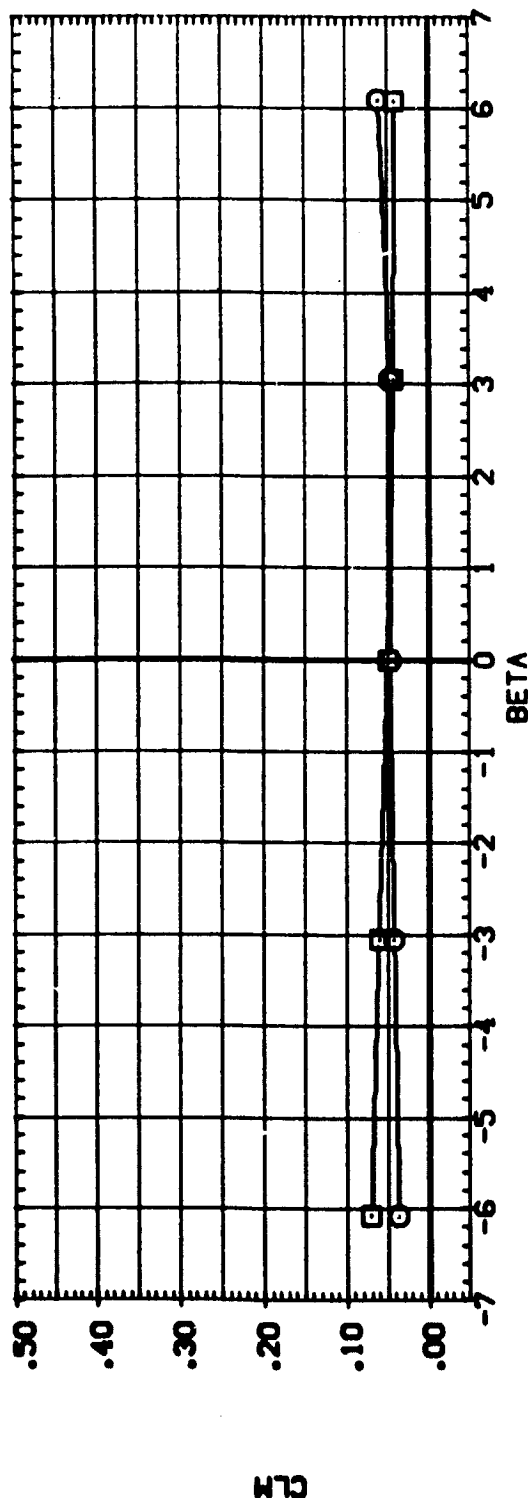


PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A) MACH = .90

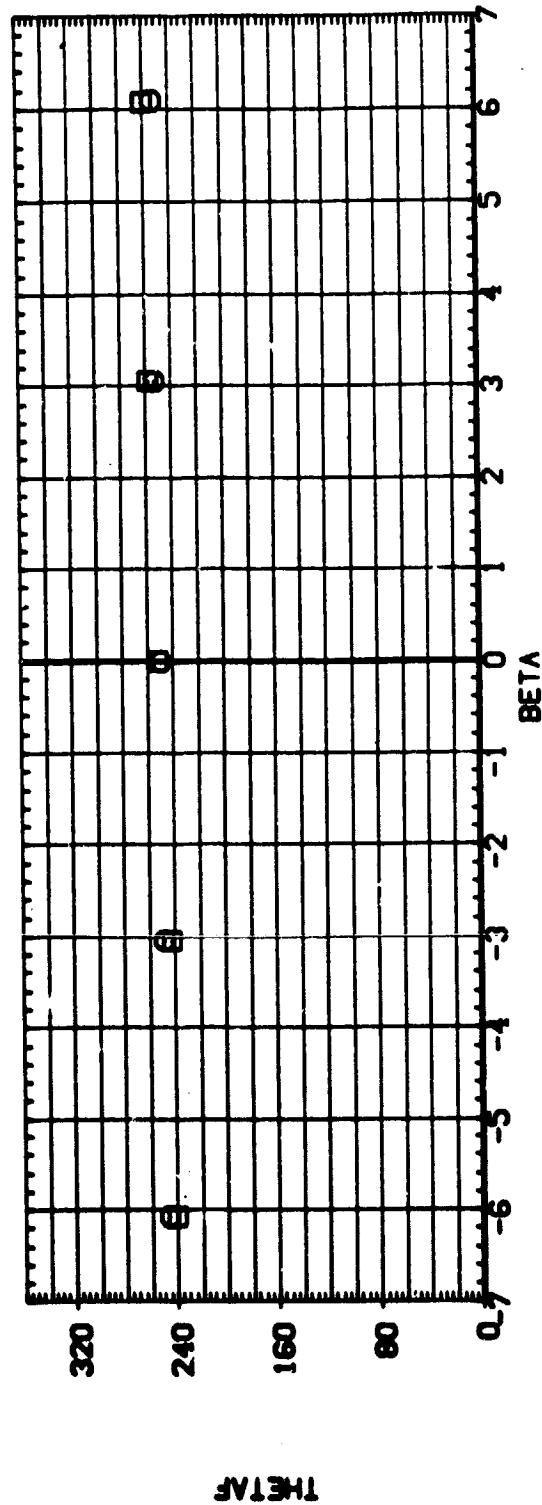
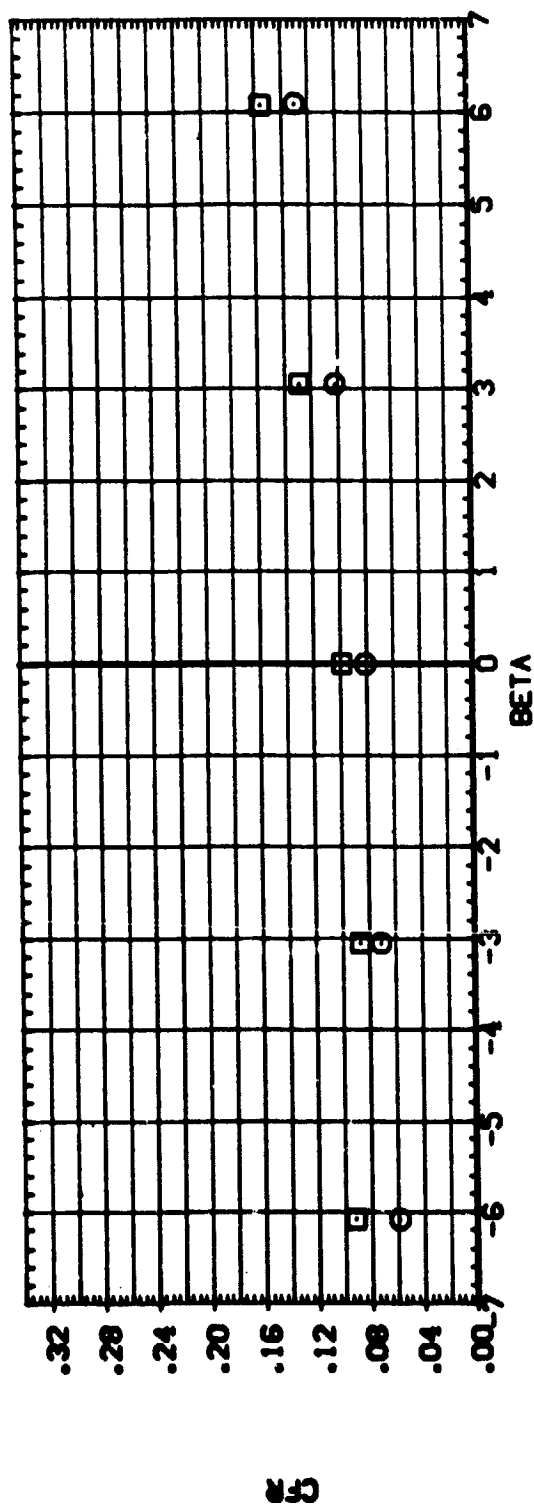
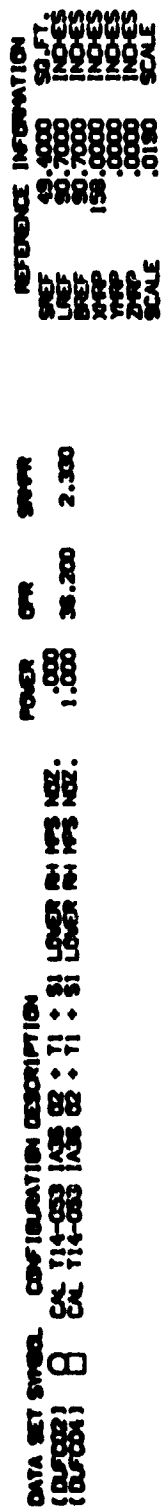
DATA SET SYMBOL: CAL 114-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.  
 (DUPLICATE) CAL 114-053 1A36 02 + T1 + S1 LOWER RH MPS NOZ.  
 REFERENCE INFORMATION  
 SREF 49.4000 50.4000 50.4000  
 LREF 90.7000 90.7000 90.7000  
 BREF 90.7000 90.7000 90.7000  
 XREF 158.0000 158.0000 158.0000  
 YREF .0000 .0000 .0000  
 ZREF .0000 .0000 .0000  
 SCALE .0150 .0150 .0150

POWER DPR SRPR  
 1.000 36.200 2.300



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = .90



**PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS**

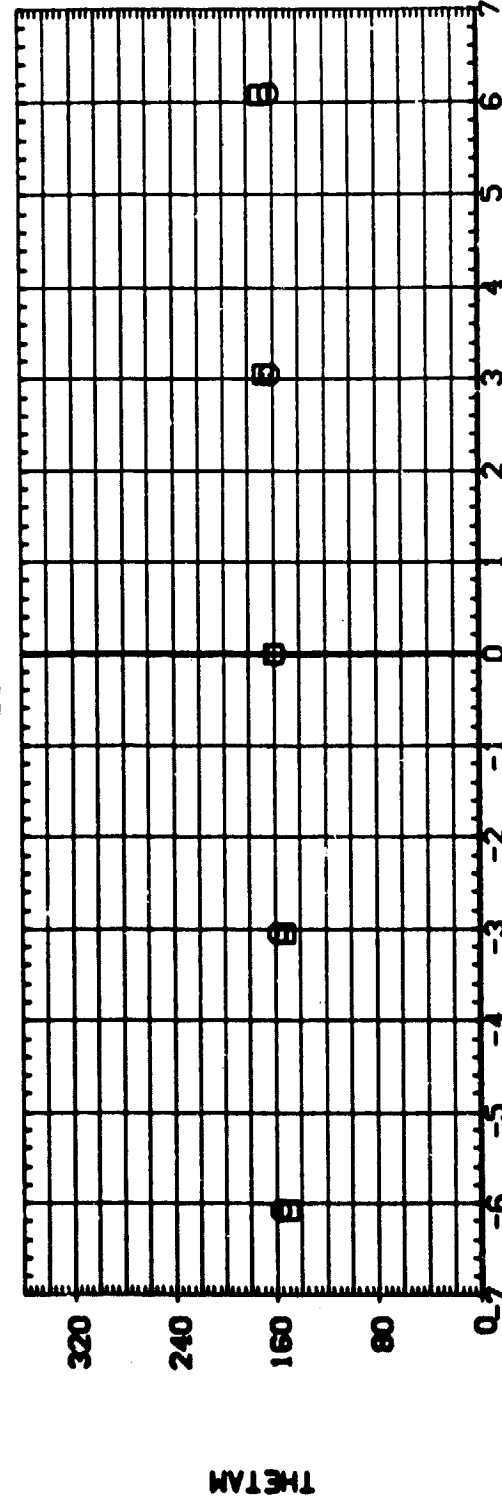
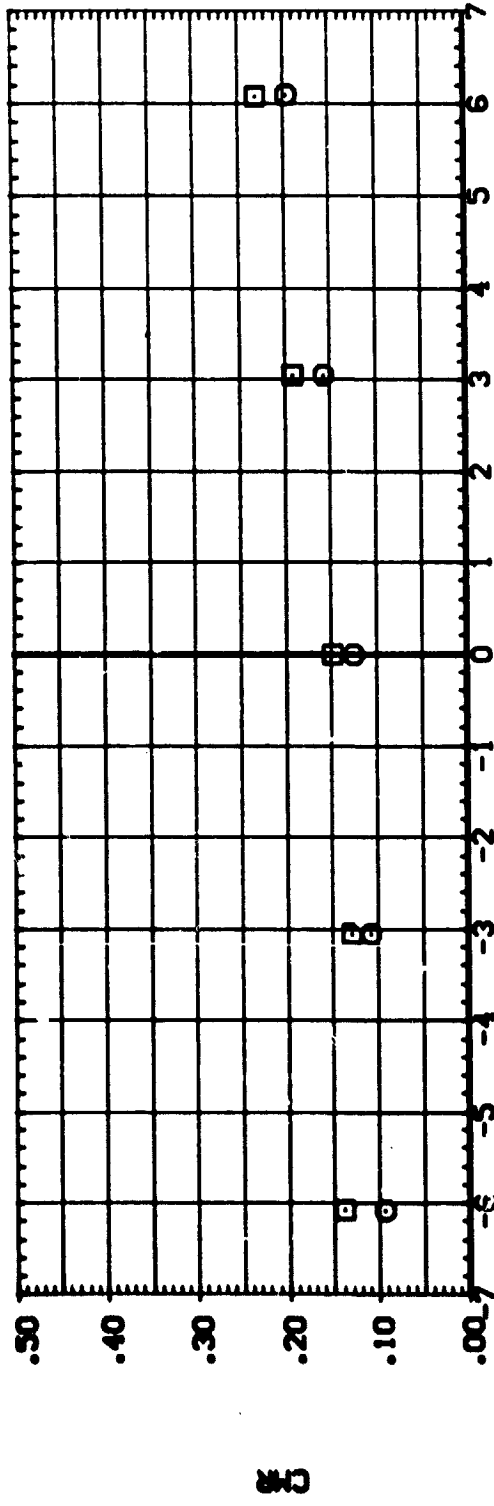
$$\{A\}MACH = .90$$

DATA SET 0002  
 (000002) 0

CONFIGURATION DESCRIPTION  
 CAL 114-053 1A36 02 : T1 : S1 LOWER RH MPS NOZ.  
 CAL 114-053 1A36 02 : T1 : S1 LOWER RH MPS NOZ.

POWER 0.000 36.200 2.300  
 1.000

REFERENCE INFORMATION  
 SREF 49.4000 50.4000 50.4000  
 LREF 50.7000 50.7000 50.7000  
 BREF 159.0000 159.0000 159.0000  
 YREF .0000 .0000 .0000  
 ZREF .0000 .0000 .0000  
 SCALE .0150



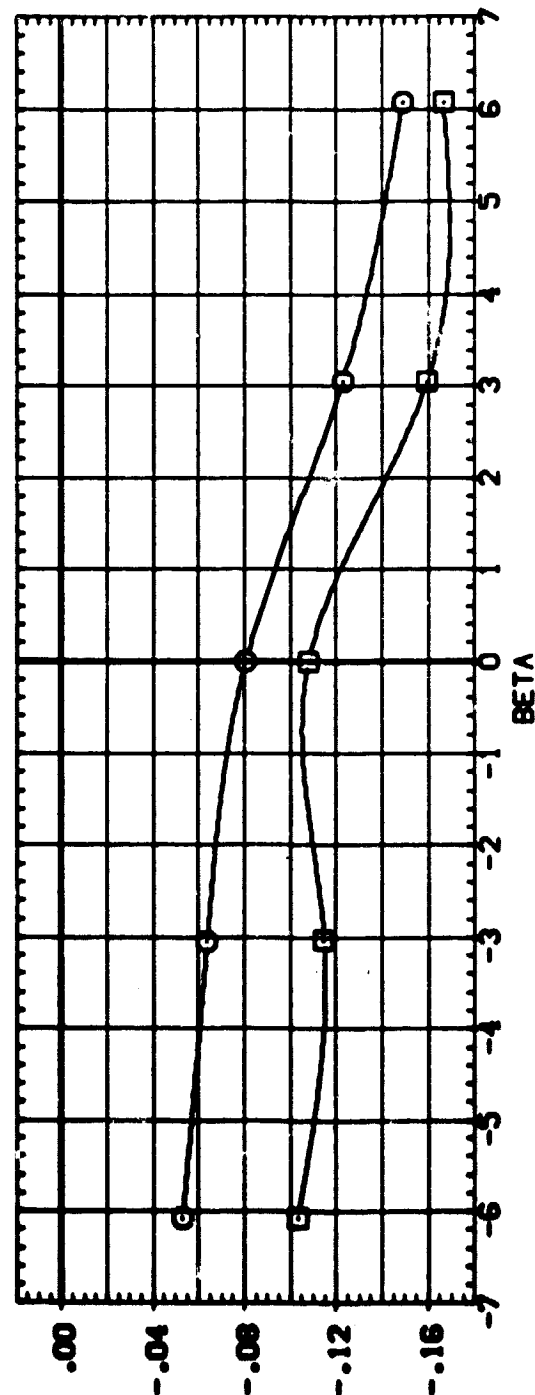
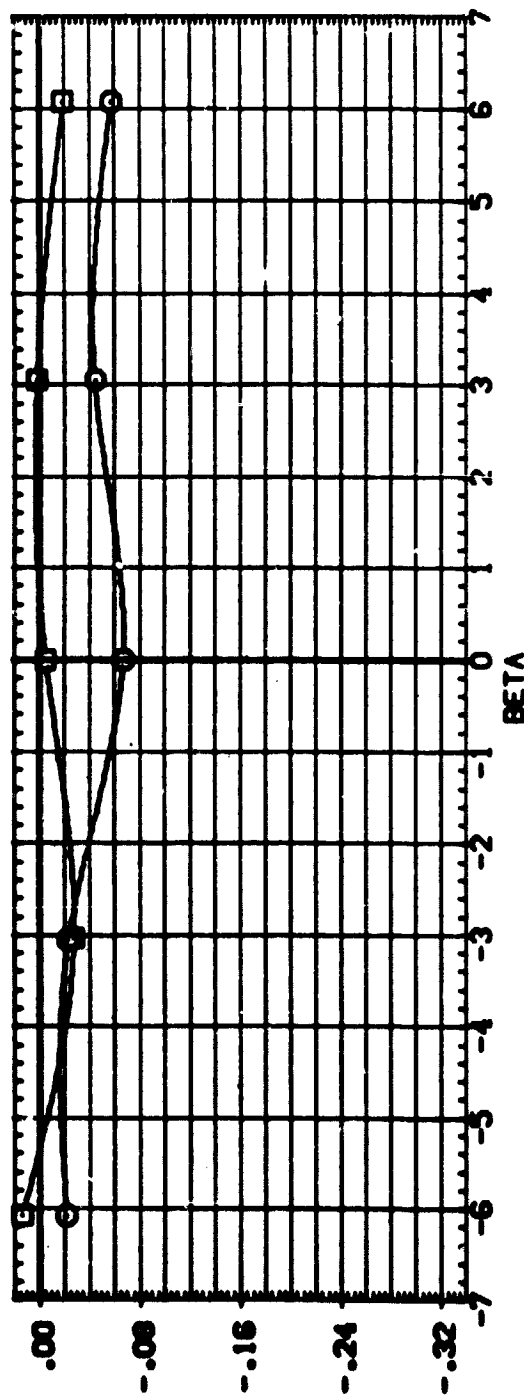
PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = .90



DATA SET SYMBOL: **8** CAL 114-083 133 02 : 11 : 81 LOWER RH MPS NOZ: 1.000 20.310 2.000  
 {85-083} 8 CAL 114-083 133 02 : 11 : 81 LOWER RH MPS NOZ: 1.000 20.310 2.000

REFERENCE INFORMATION  
 SET 48.4000 59.47  
 UNIT 80.7000 INCHES  
 REF 80.7000 INCHES  
 XREF 159 INCHES  
 YREF 0.0000 INCHES  
 ZREF 0.0000 INCHES  
 SCALE .0150



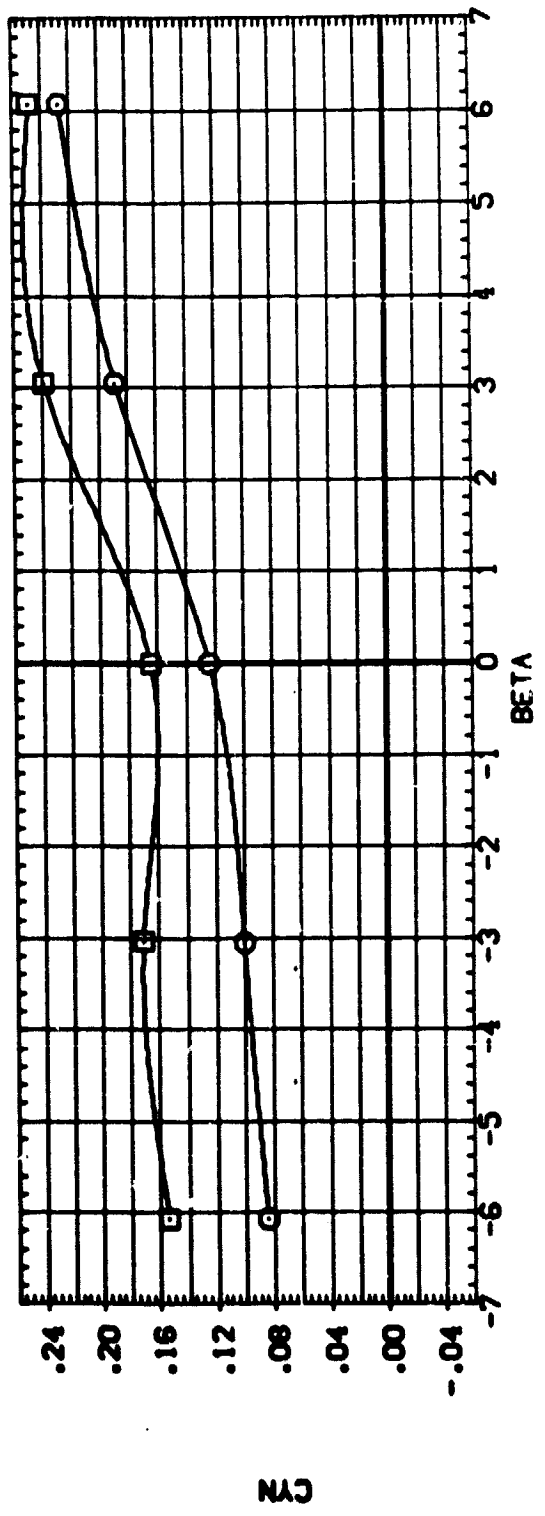
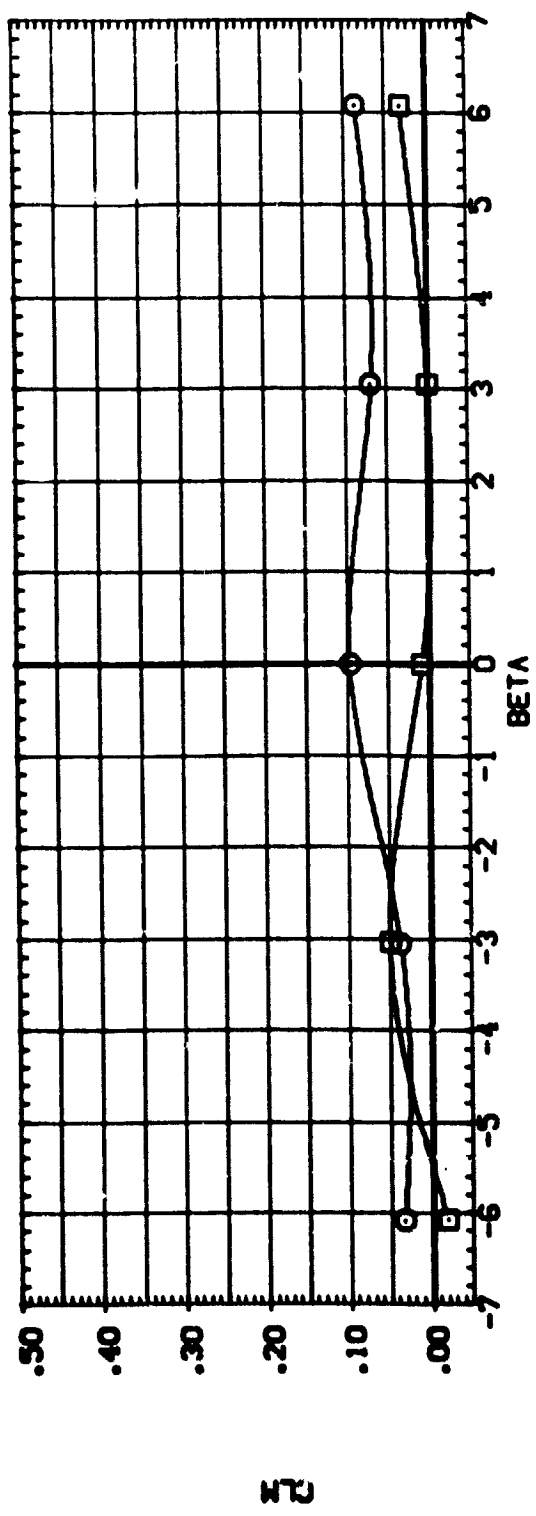
PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

DATA SET 5868L CONFIGURATION DESCRIPTION POWER CPM 50-PR

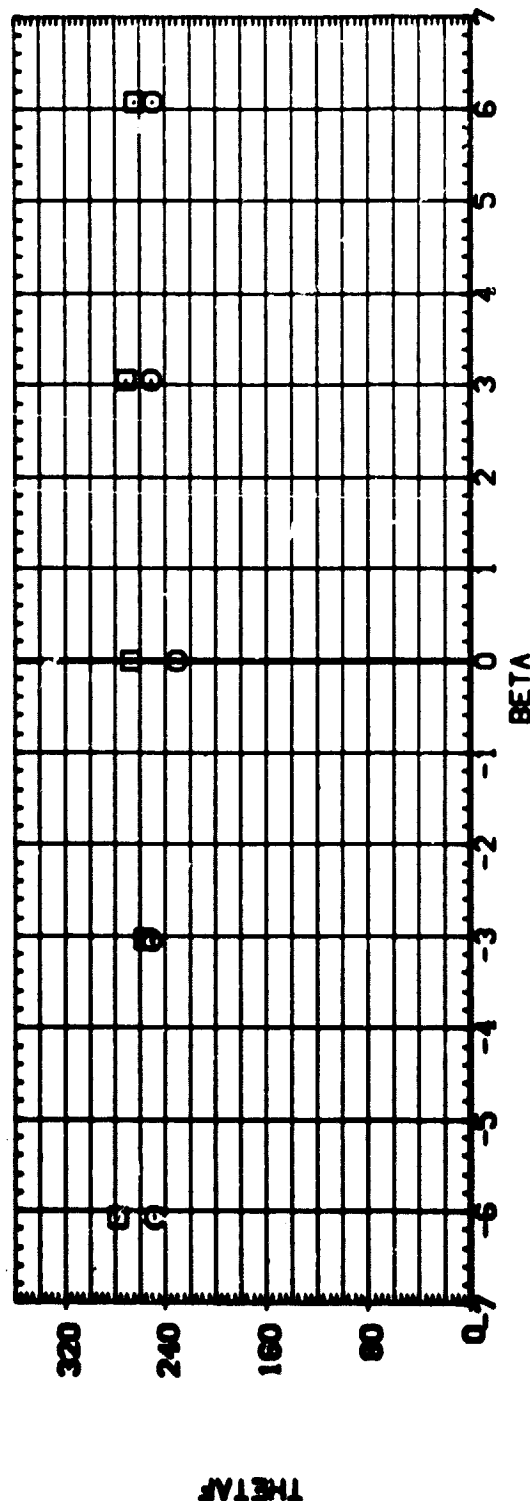
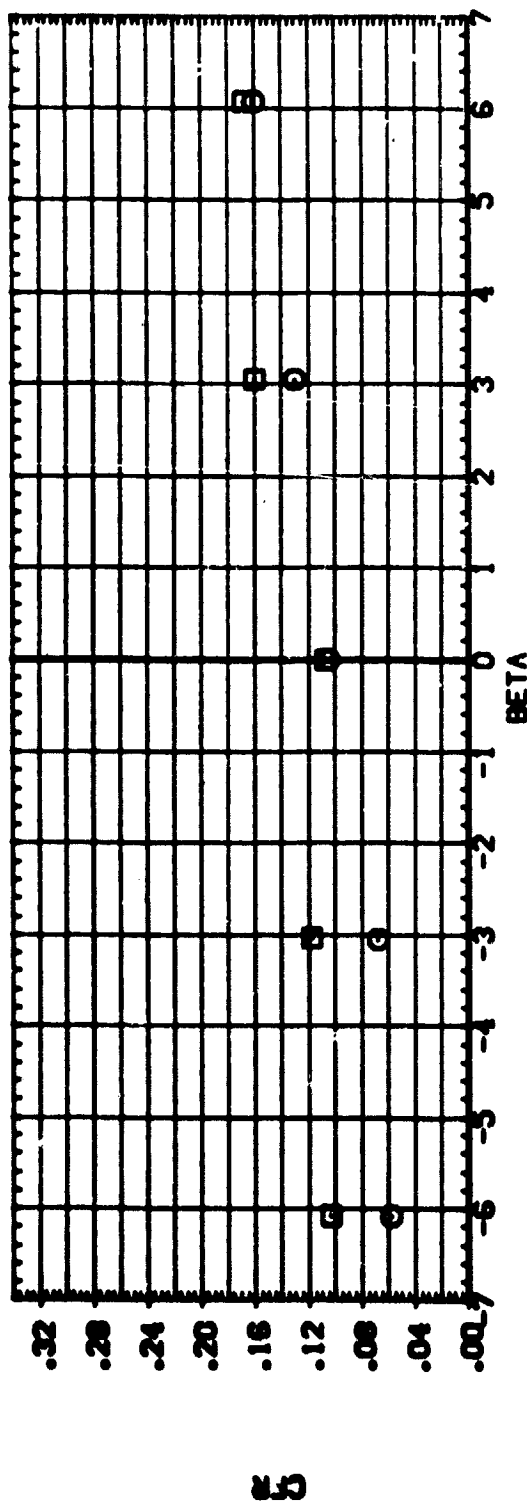
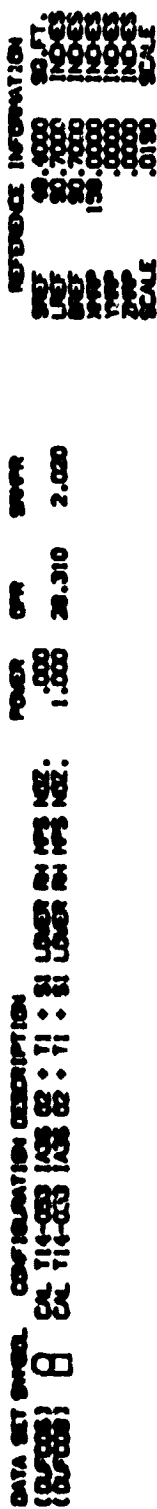
(SUPP) □ CAL 714-053 [A38 02 : 1] : 51 LOWER RH MPS NOZ: 1.000 28.310 2.020  
 (SUPP) □ CAL 714-053 [A38 02 : 1] : 51 LOWER RH MPS NOZ: 1.000 28.310 2.020

REFERENCE INFORMATION  
 SREF 49.4000 50.000  
 LREF 50.7000 50.000  
 BREF 50.7000 50.000  
 XREF 159.0000 50.000  
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 SCALE .0150



PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

(A)MACH = 1.20

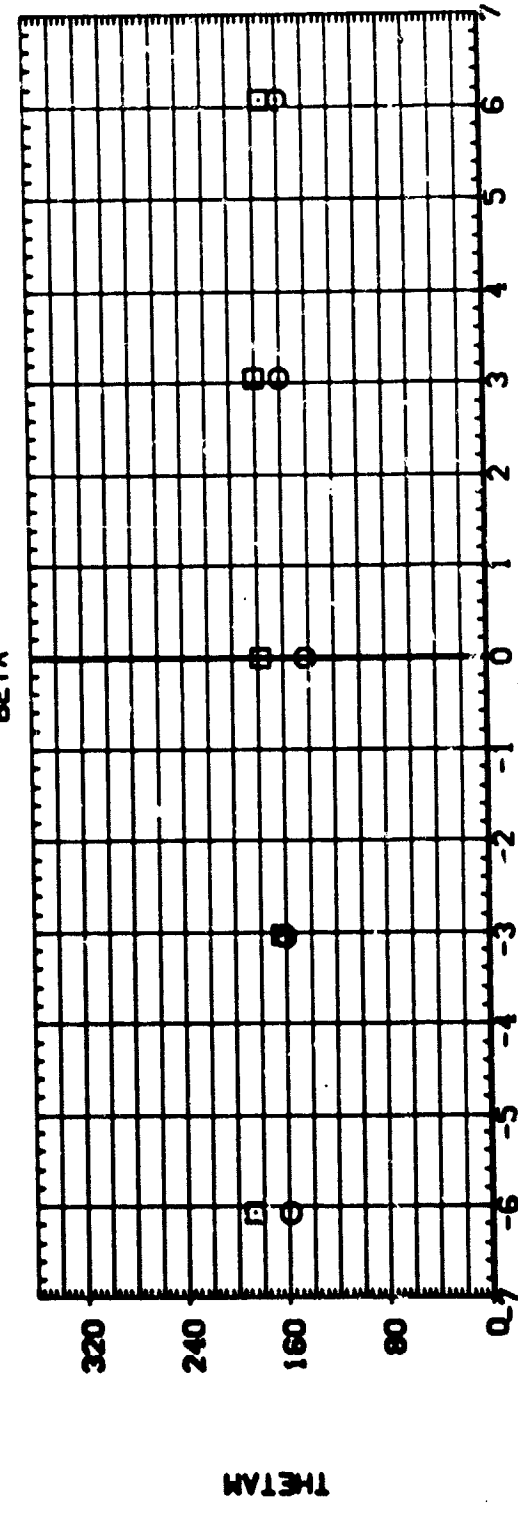
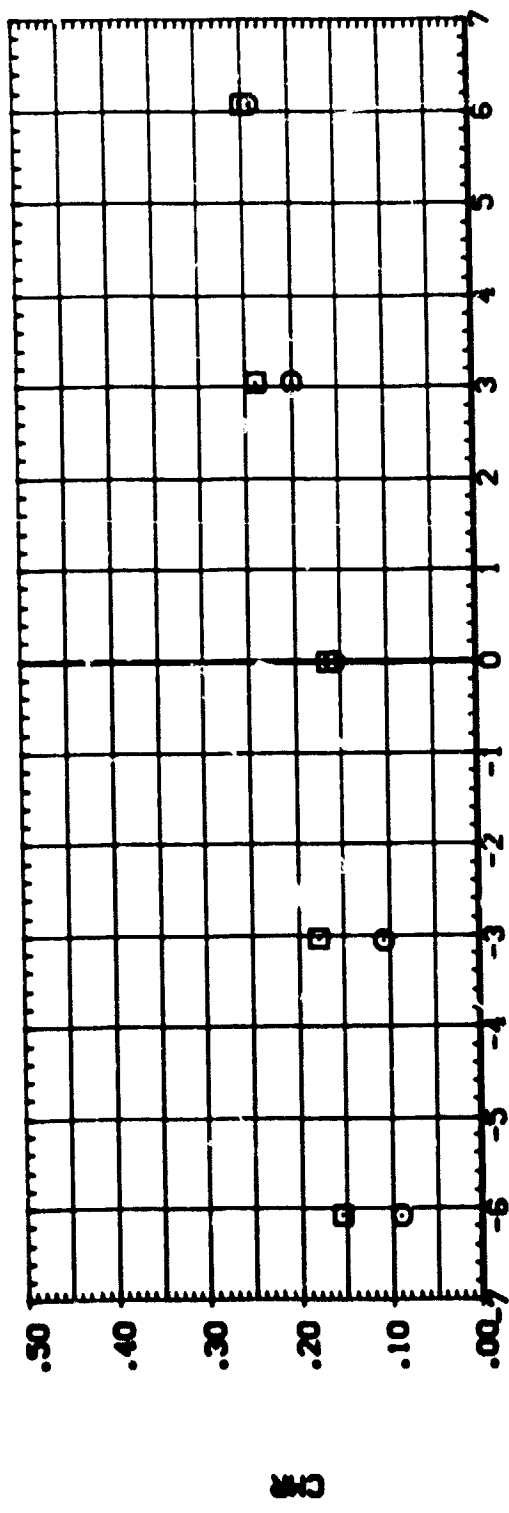


### PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS

$$C_{\text{A}}/C_{\text{A}0} = 1.20$$

DATA SET SYMBOL: 8 CAL 114-083  
 CONFIGURATION DESCRIPTION: 135 02 : 71 : 51 LOWER RH MPS NOZ.  
 POWER: 1.000  
 CTR: 20.310  
 SP-PR: 2.020

REFERENCE INFORMATION:  
 SRET 49.4000 INCHES  
 LRET 50.7000 INCHES  
 BRET 50.7000 INCHES  
 XTRP 150.0000 INCHES  
 YTRP .0000 INCHES  
 ZTRP .0000 INCHES  
 SCALE .0150

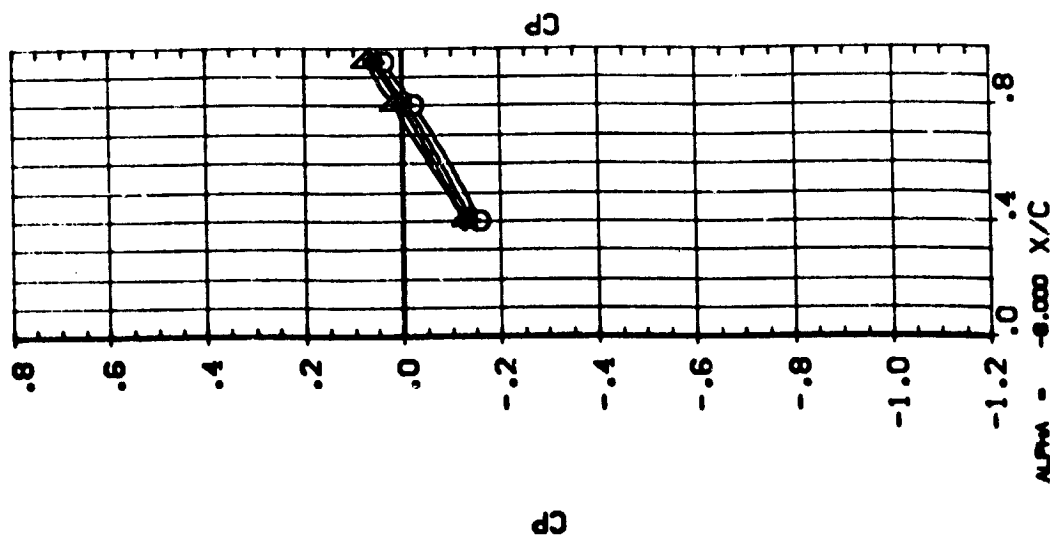
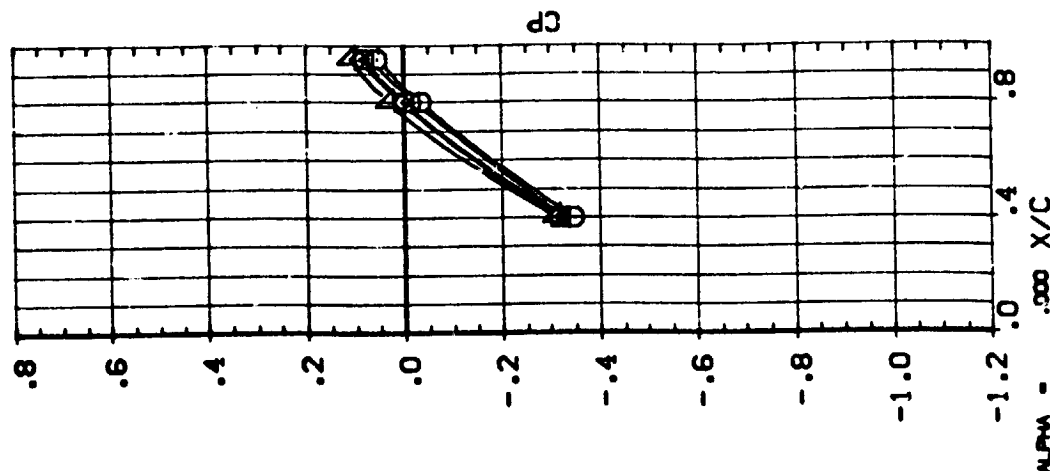
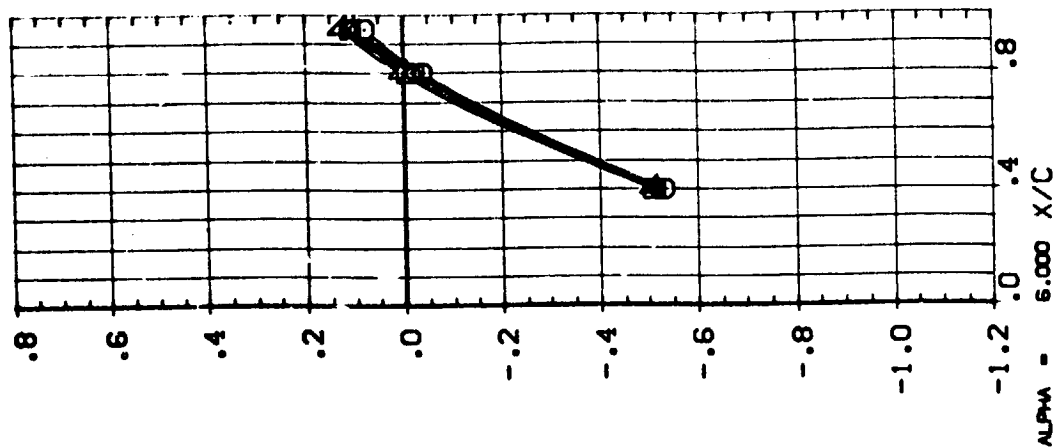


PLUME EFFECT ON LOWER RH MPS NOZZLE TOTAL LOADS  
 (A)MACH = 1.20





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	UPPER VING	POWER OFF	BETA	OPR	SWPR
[15000]	CAL T14-053 [136 01 T1 S1	UPPER VING	POWER OFF	.000	28.310	2.000
[15001]	CAL T14-053 [136 01 T1 S1	UPPER VING	POWER ON	.000	70.500	2.000
[15002]	CAL T14-053 [136 01 T1 S1	UPPER VING	POWER ON	.000	48.500	2.000
[15003]	CAL T14-053 [136 01 T1 S1	UPPER VING	POWER ON	.000	28.310	2.400



PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

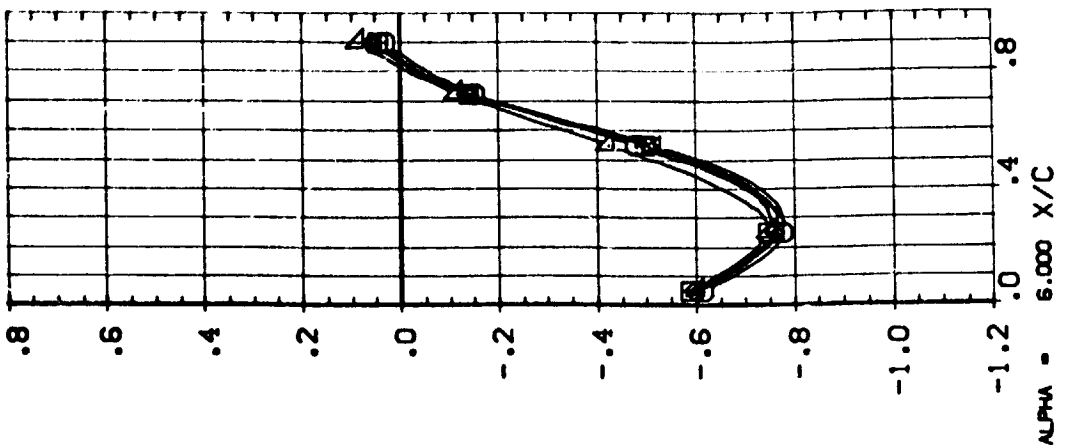
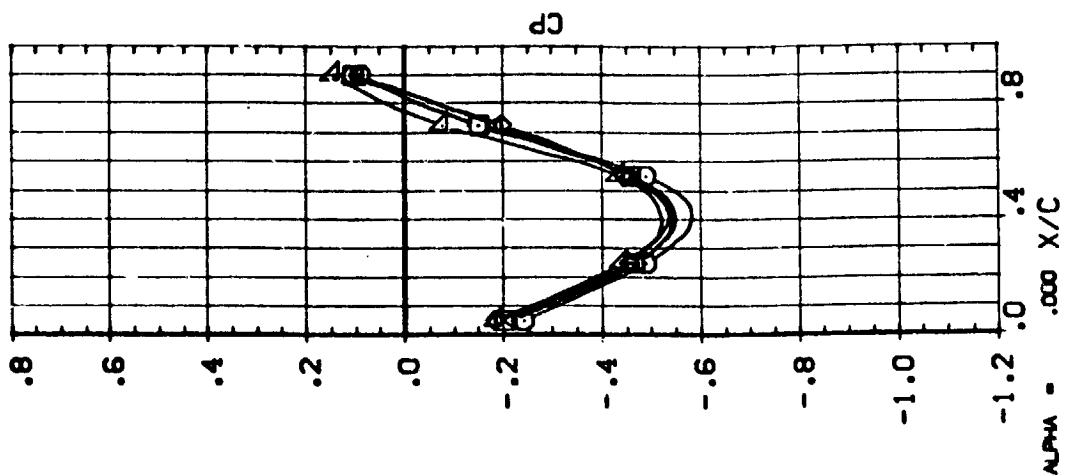
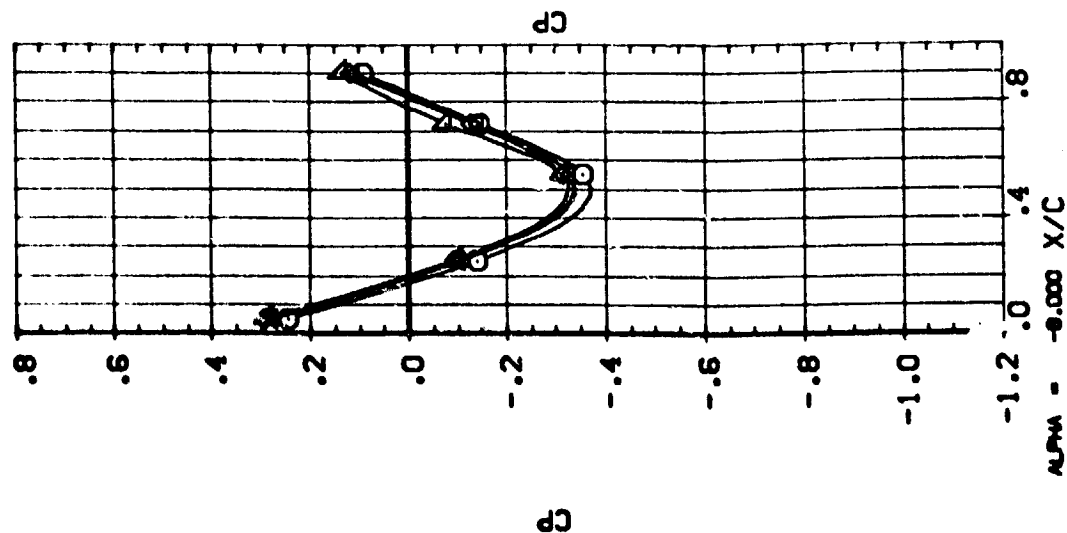
MACH = .900 ETA = .427

DATA SET SYMBOL    CONFIGURATION DESCRIPTION

000000	CAL T14-053	A36	01	T1	SI
000000	CAL T14-053	A36	01	T1	SI
000000	CAL T14-053	A36	01	T1	SI
000000	CAL T14-053	A36	01	T1	SI
000000	CAL T14-053	A36	01	T1	SI
000000	CAL T14-053	A36	01	T1	SI

UPPER VING    POWER OFF    BETA    CPR    SPR

UPPER VING	POWER OFF	.000	28.310	2.020
UPPER VING	POWER ON	.000	70.500	2.020
UPPER VING	POWER ON	.000	48.600	2.020
UPPER VING	POWER ON	.000	28.310	2.400

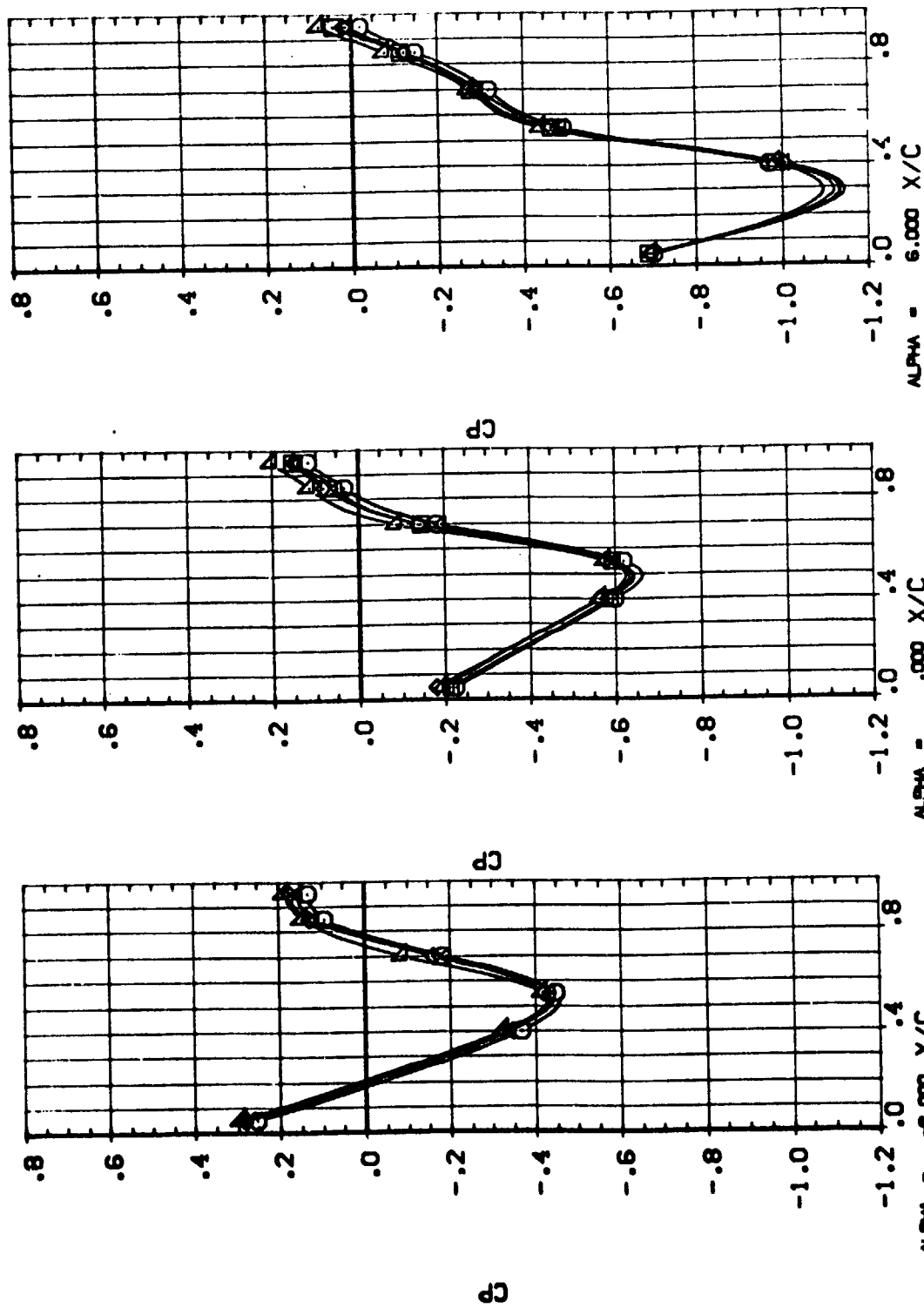


# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900    ETA = .534



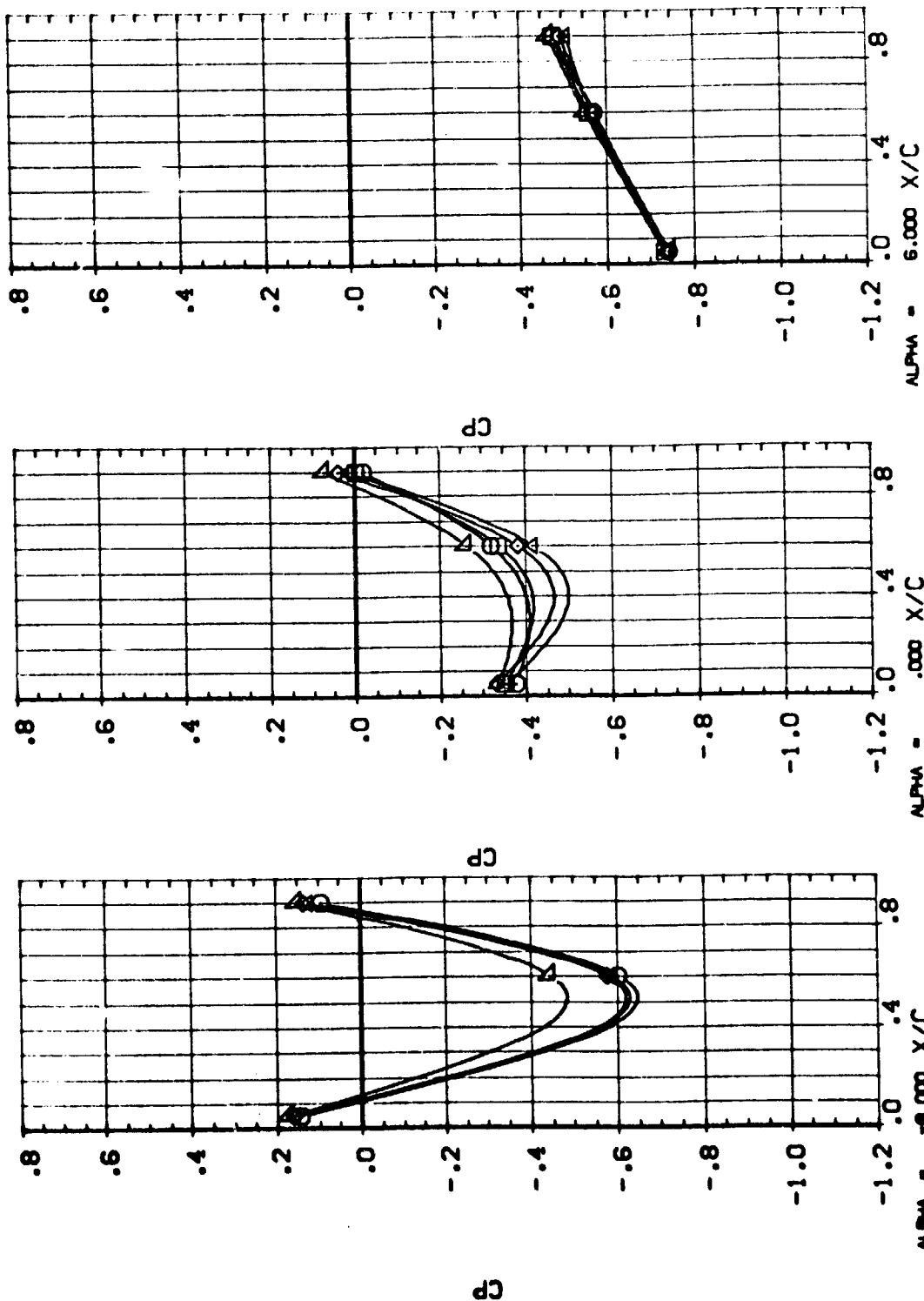
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	UPPER WING	POWER ON	BETA	OPR	SWPR
[W100]	CAL T14-053 [A36 01 T] S1	UPPER WING	POWER ON	.000	28.310	2.020
[W101]	CAL T14-053 [A36 01 T] S1	UPPER WING	POWER ON	.000	70.500	2.020
[W102]	CAL T14-053 [A36 01 T] S1	UPPER WING	POWER ON	.000	48.800	2.020
[W103]	CAL T14-053 [A36 01 T] S1	UPPER WING	POWER ON	.000	28.310	2.400



PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900 ETA = .673

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	UPPER VING	POWER OFF	BETA	OPR	SRPR
[10000]	CAL T14-033 IAS6 01 T1 S1	UPPER VING	POWER OFF	.000	28.310	2.020
[10001]	CAL T14-033 IAS6 01 T1 S1	UPPER VING	POWER OFF	.000	70.500	2.020
[10002]	CAL T14-033 IAS6 01 T1 S1	UPPER VING	POWER OFF	.000	48.800	2.020
[10003]	CAL T14-033 IAS6 01 T1 S1	UPPER VING	POWER OFF	.000	28.310	2.400

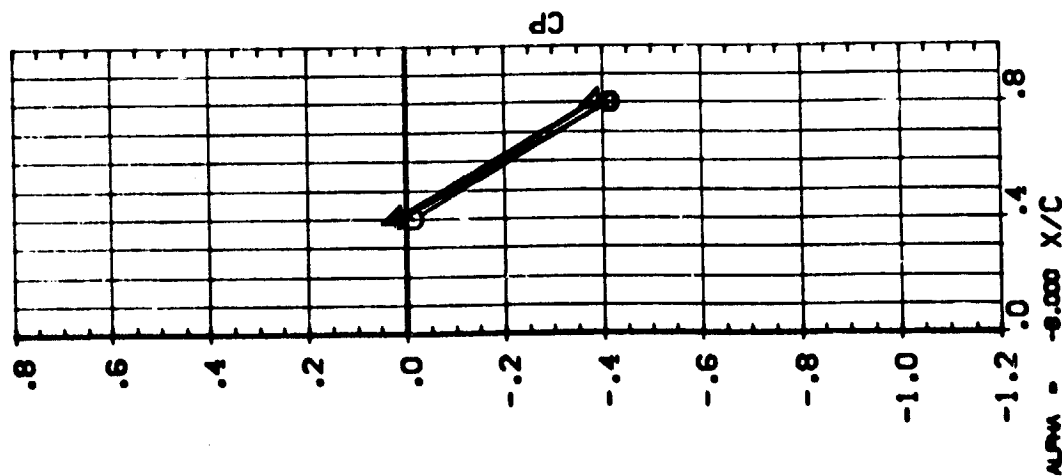
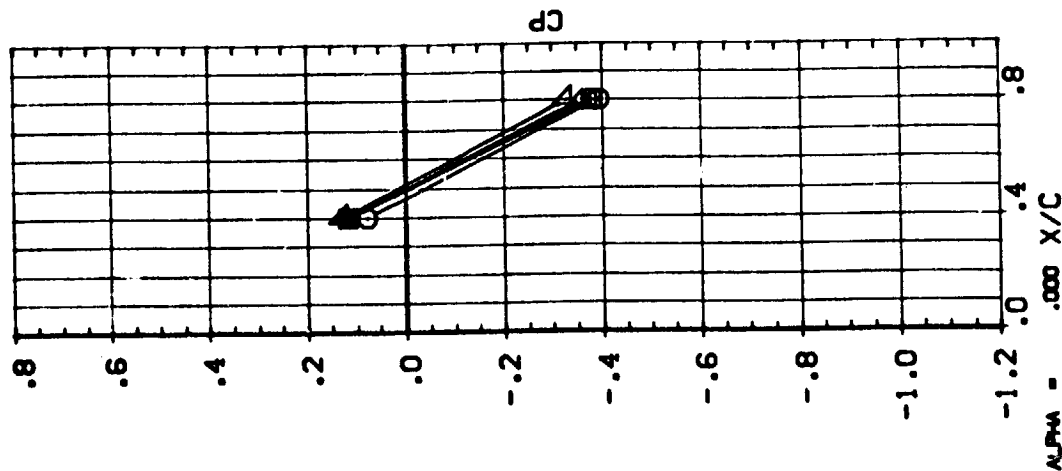
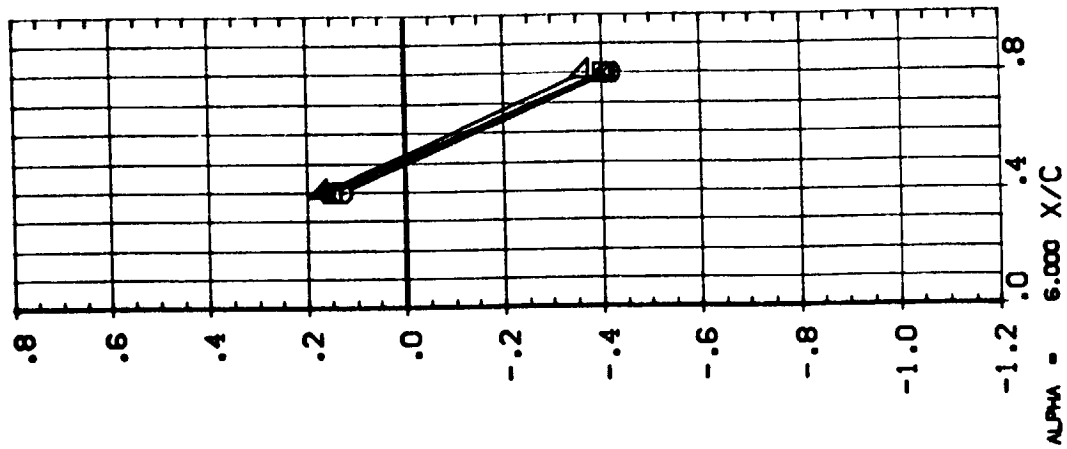


PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900    ETA = .887    PAGE 436



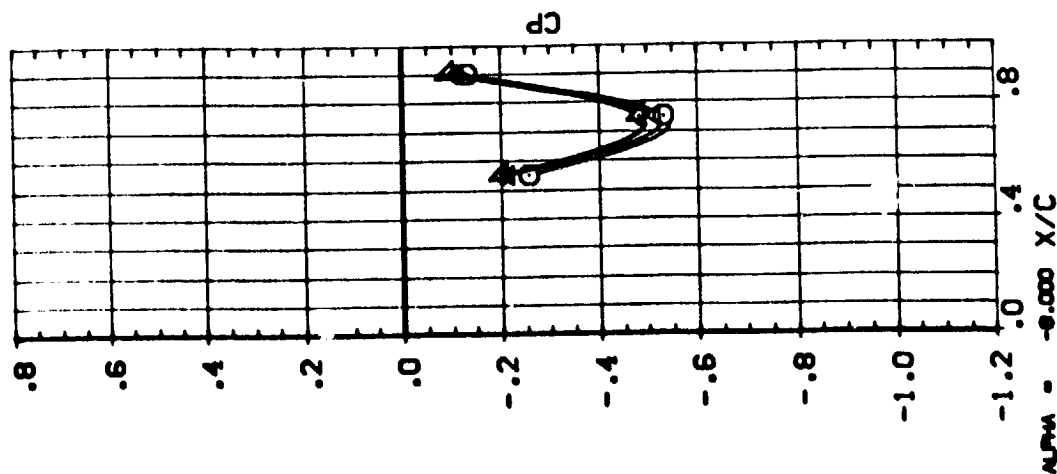
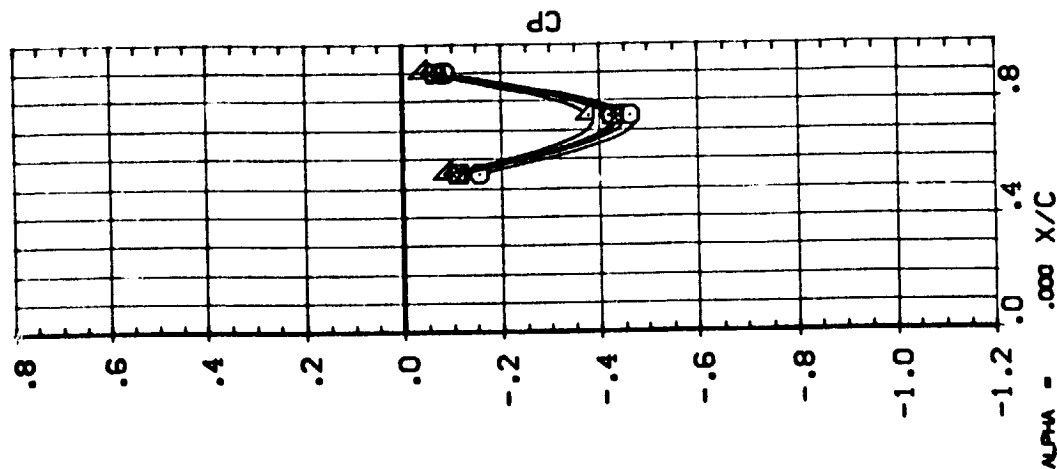
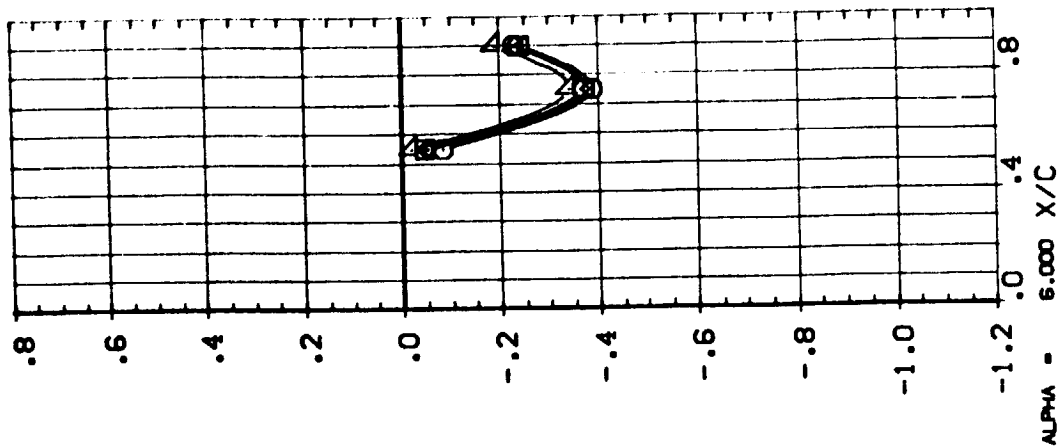
DATA SET SYNO.	CONFIGURATION DESCRIPTION	LOWER	VING	POWER	BFF	BETA	OPR	SPR
[5000]	T14-0000	01	SI	POWER	66	.000	28.310	2.000
[5001]	T14-0000	01	SI	POWER	66	.000	70.500	2.000
[5002]	T14-0000	01	SI	POWER	66	.000	48.800	2.000
[5003]	T14-0000	01	SI	POWER	66	.000	28.310	2.400
[5004]	T14-0000	01	SI	POWER	66	.000	28.310	2.400



# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900    ETA = .427

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LOWER	VING	POWER	DF	BETA	OPR	SNRPR
1	000	T14-003	01	T1	01	01	000	28.310	2.000
2	000	T14-003	01	T1	01	01	000	70.500	2.000
3	000	T14-003	01	T1	01	01	000	48.600	2.000
4	000	T14-003	01	T1	01	01	000	28.310	2.400

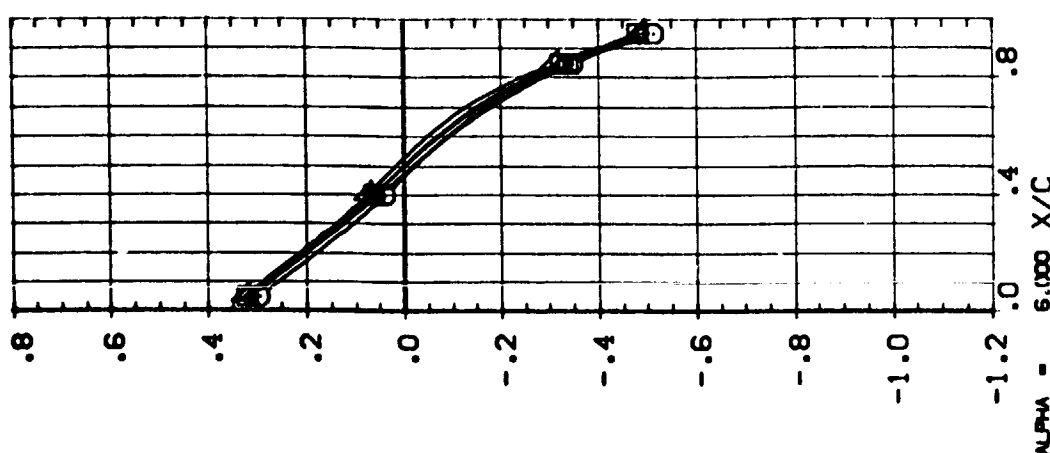
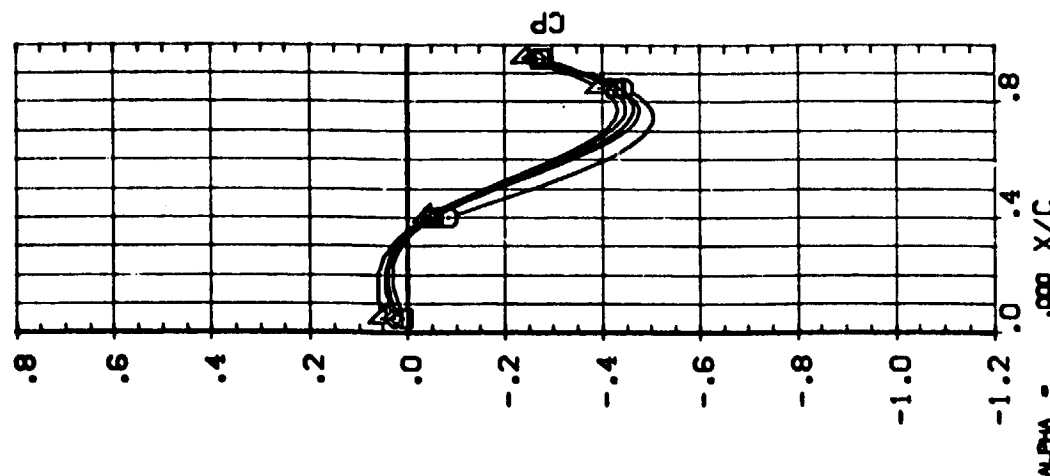
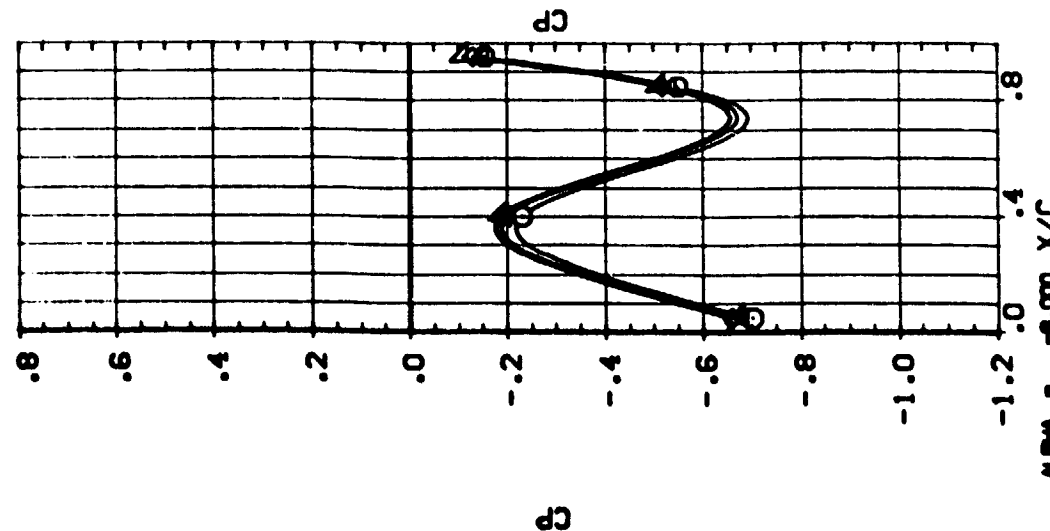


# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900    ETA = .534



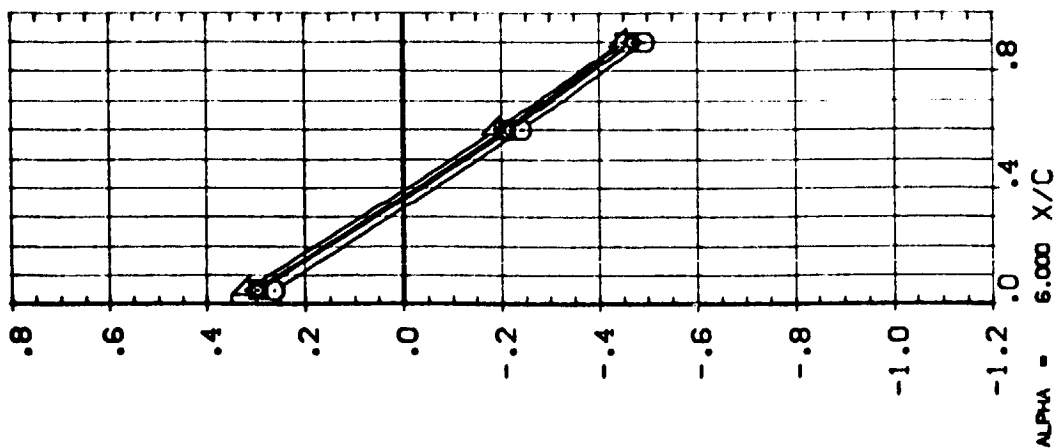
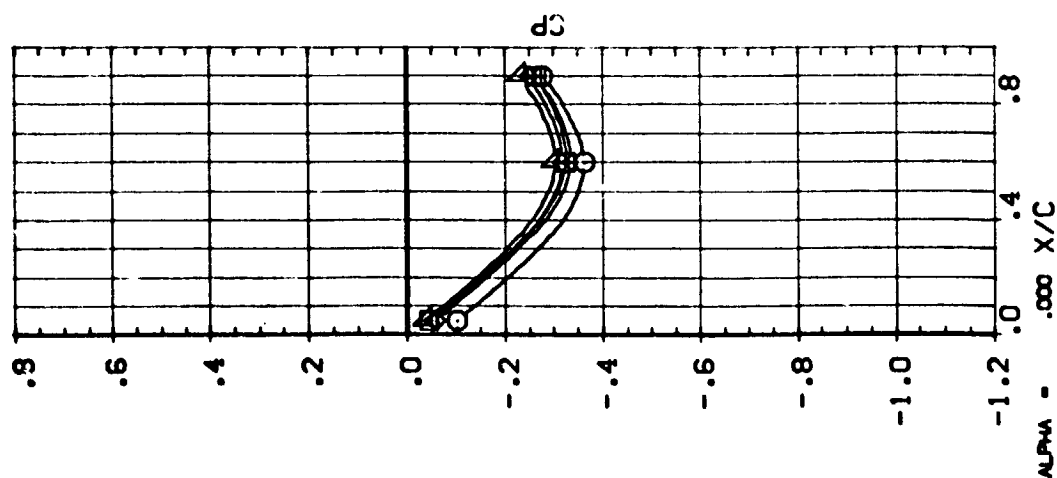
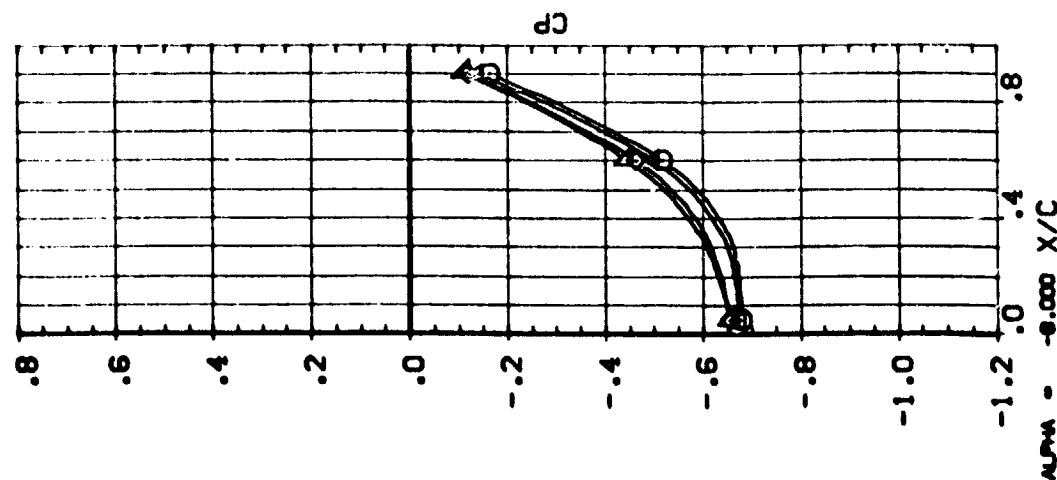
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LOWER	VING	POWER	BETA	OPR	SNRPR
00000000	T14-000	01	01	01	00	28.310	2.000
00000000	T14-000	01	01	01	00	70.500	2.000
00000000	T14-000	01	01	01	00	48.600	2.000
00000000	T14-000	01	01	01	00	28.310	2.400



# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900 ETA = .673

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LOWER WING	POWER OFF	BETA	OPR	SRPR
U5000	T14-003	LOWER WING	POWER OFF	.000	28.310	2.020
U5001	T14-003	LOWER WING	POWER OFF	.000	70.500	2.020
U5002	T14-003	LOWER WING	POWER OFF	.000	48.800	2.020
U5003	T14-003	LOWER WING	POWER OFF	.000	28.310	2.400



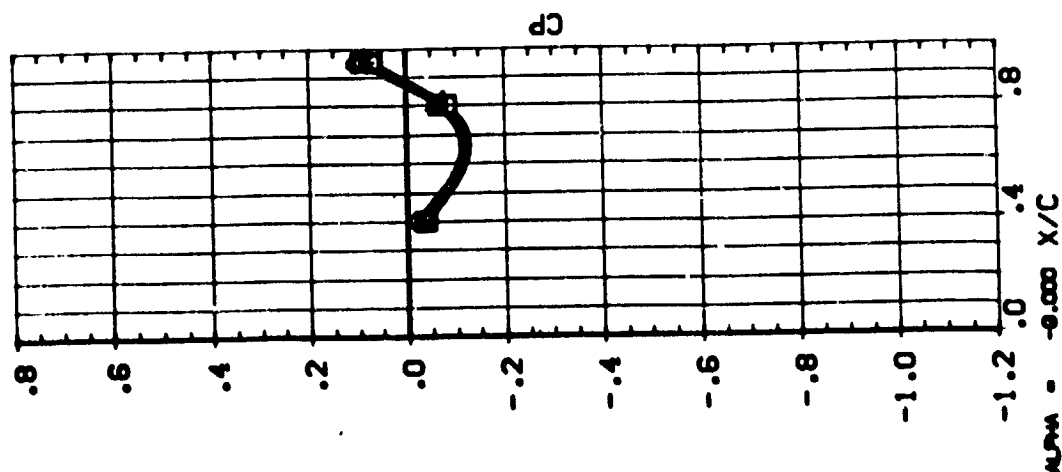
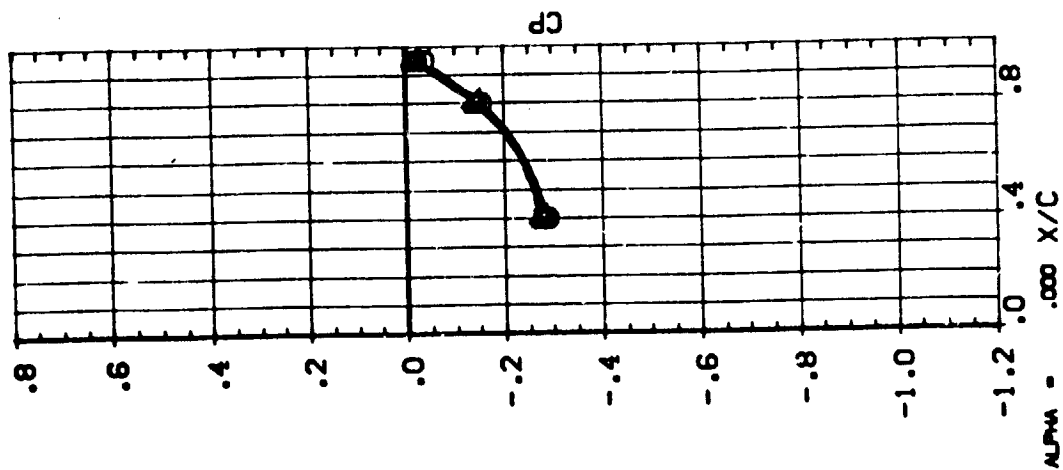
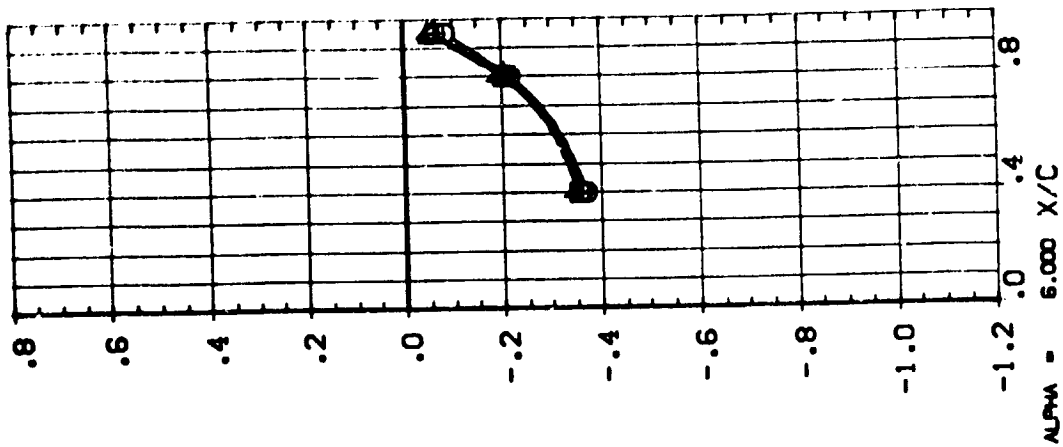
# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900    ETA = .887



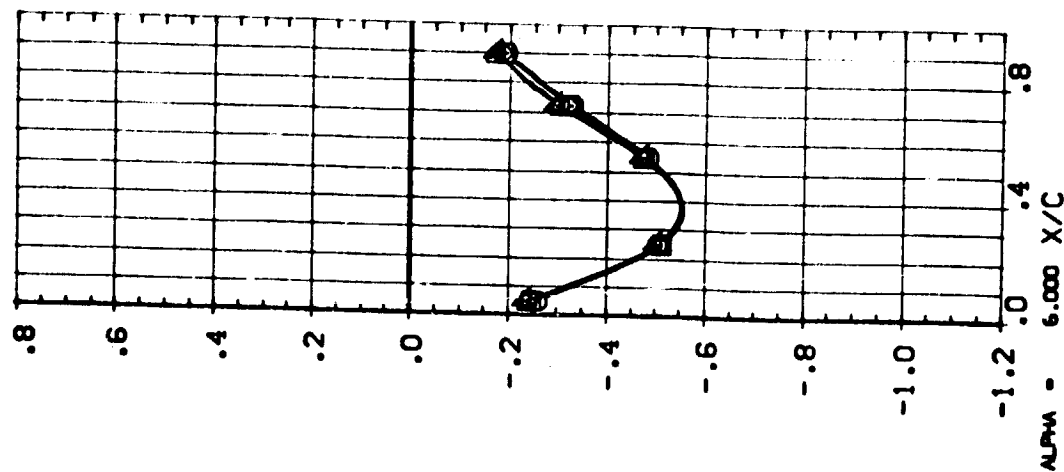


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	UPPER VING	POWER OFF	BETA	OPR	SWPR
0001	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0002	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0003	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0004	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0005	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0006	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0007	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0008	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0009	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0010	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0011	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0012	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0013	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0014	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0015	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0016	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0017	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0018	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0019	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0020	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0021	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0022	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0023	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0024	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0025	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0026	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0027	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0028	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0029	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0030	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0031	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0032	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0033	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0034	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0035	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0036	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0037	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0038	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0039	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300
0040	T14-003 [A35 01 T1 S]	UPPER VING	POWER OFF	.000	.000	2.300



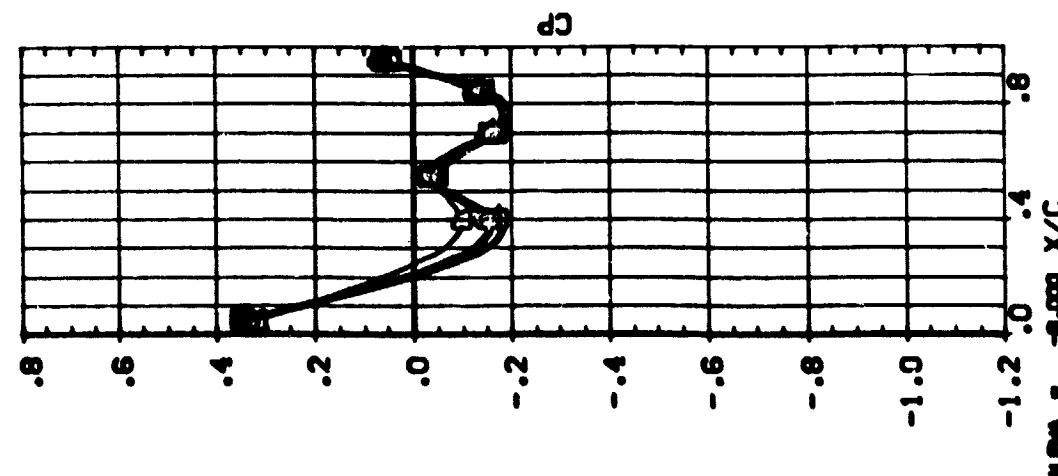
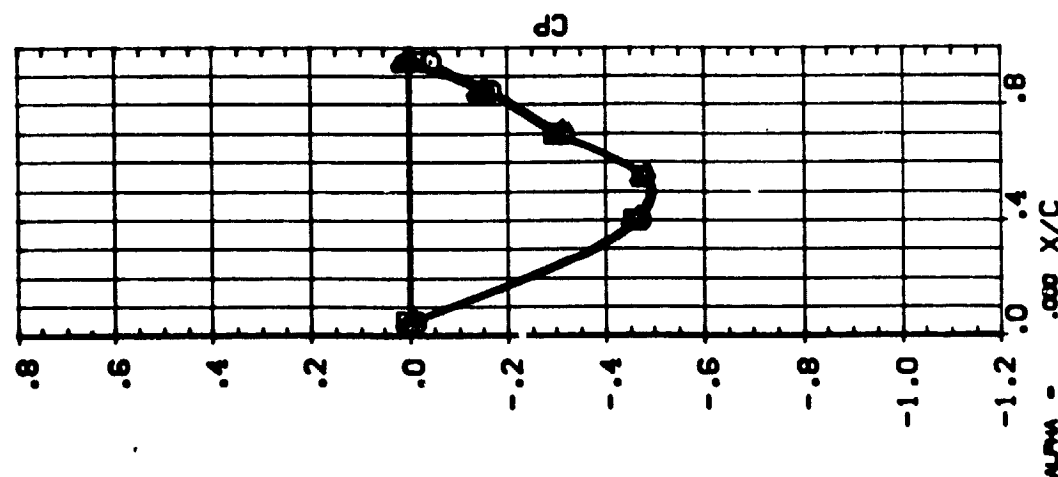
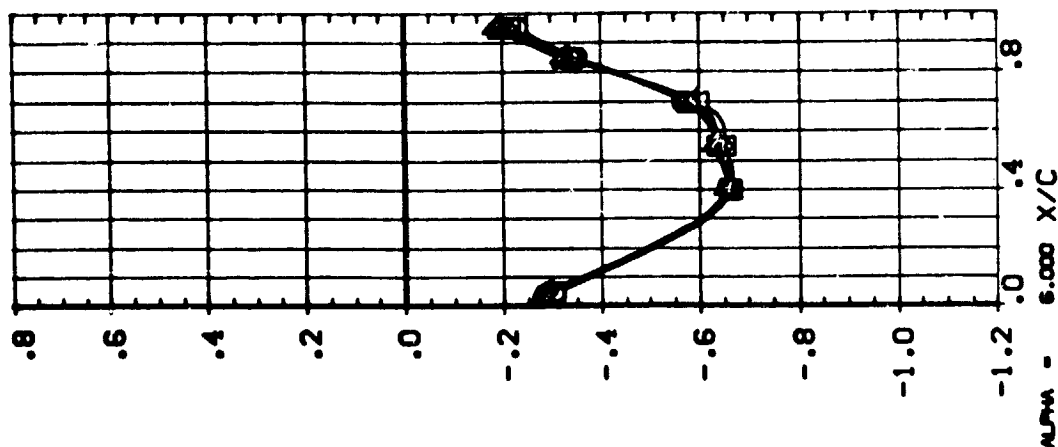
PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = 1.200 ETA = .427

[illegible]

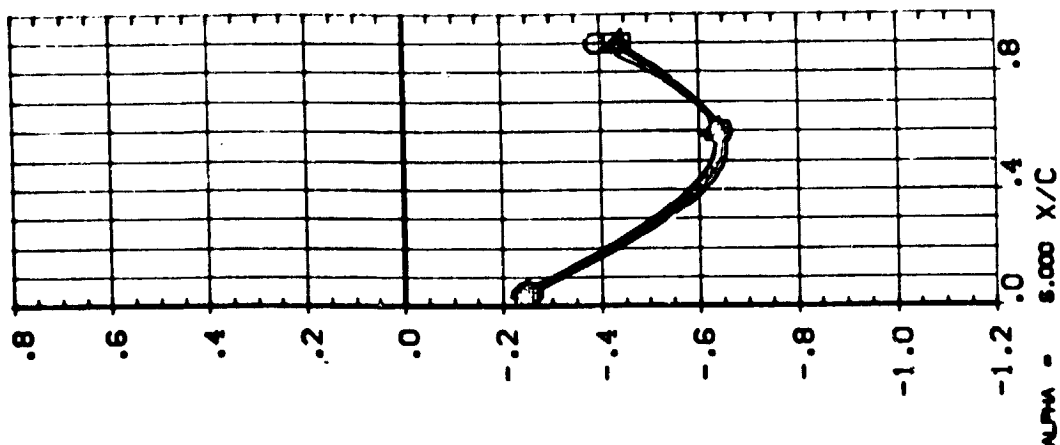
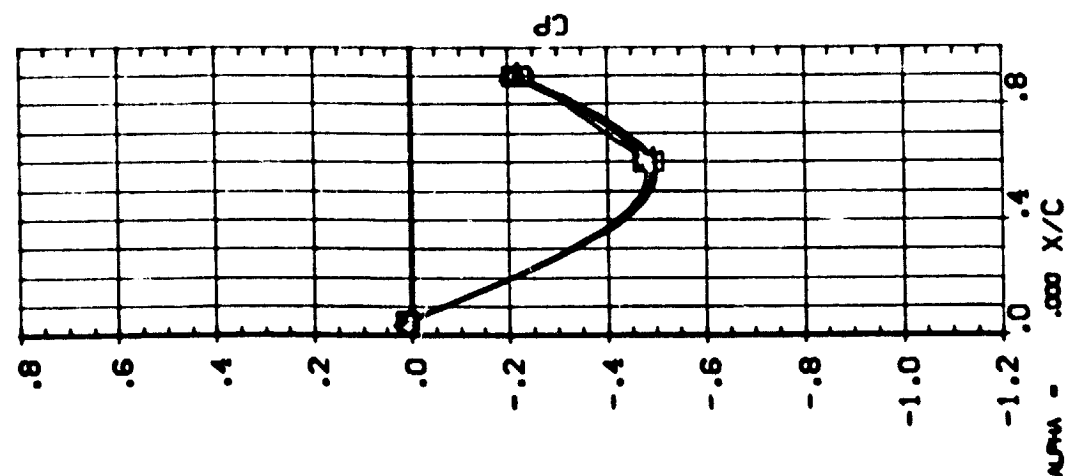
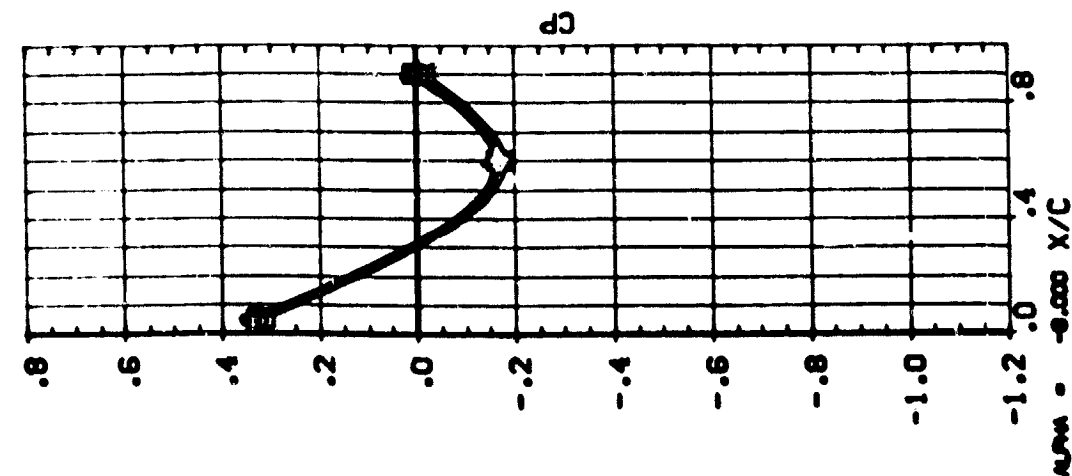
# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

**MACH = 1.200    ETA = .534**



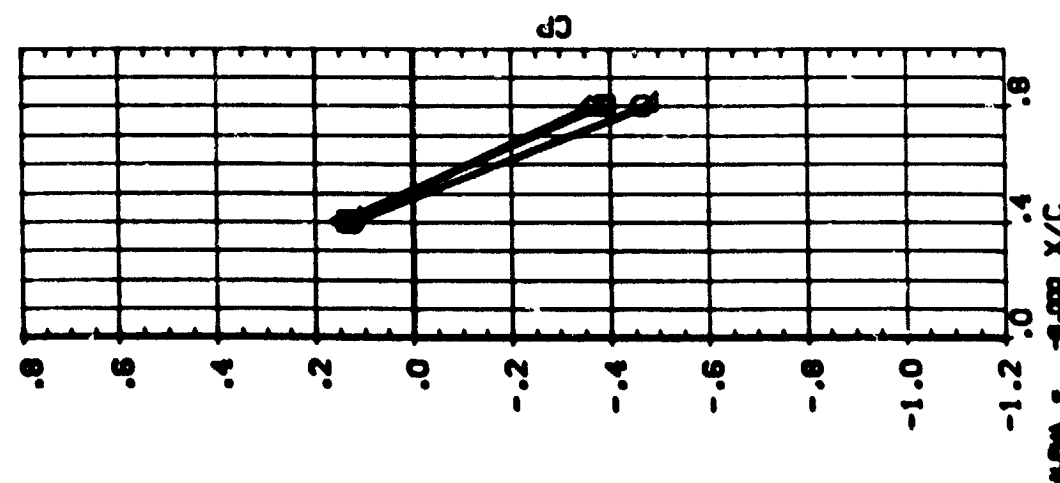
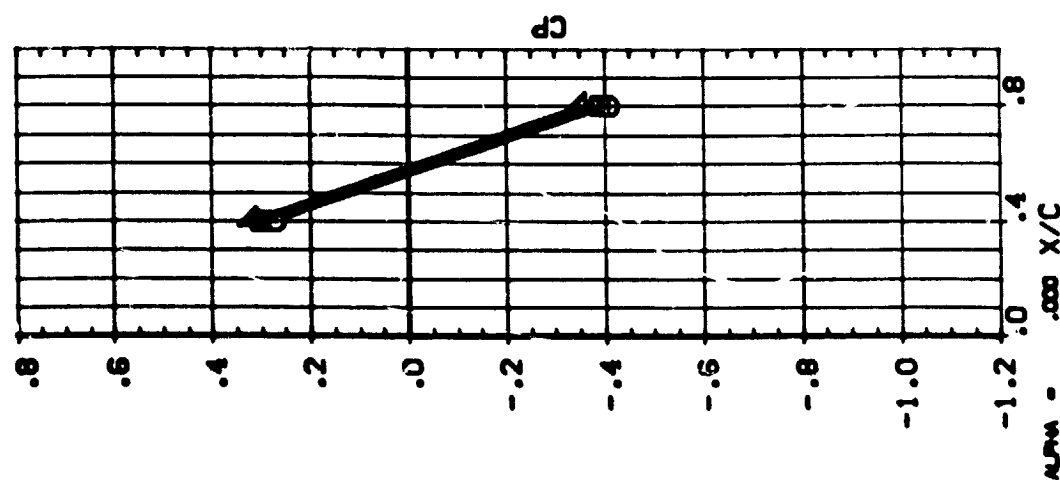
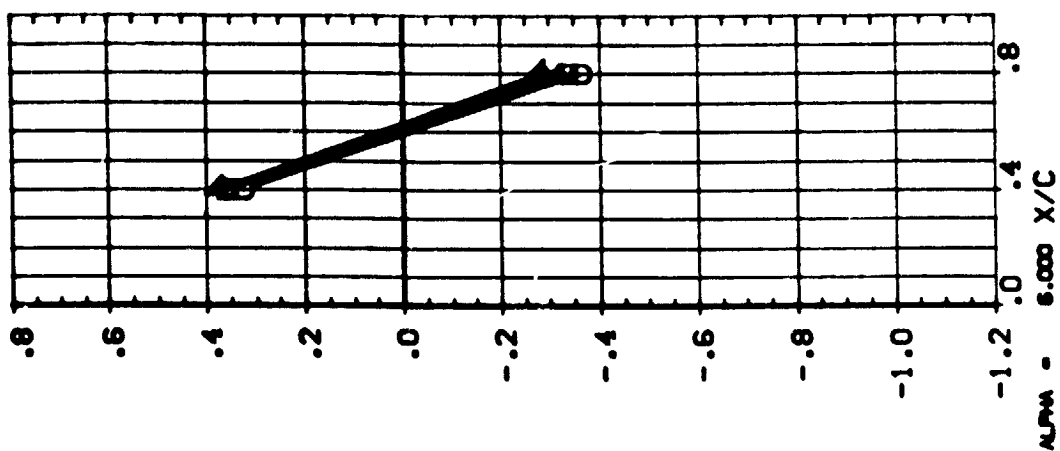
# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

**MACH = 1.200    ETA = .673**

[illegible]

# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

$$\text{MACH} = 1.200 \quad \text{ETA} = .887$$

[illegible]

## PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH 1.200 ETA = .427

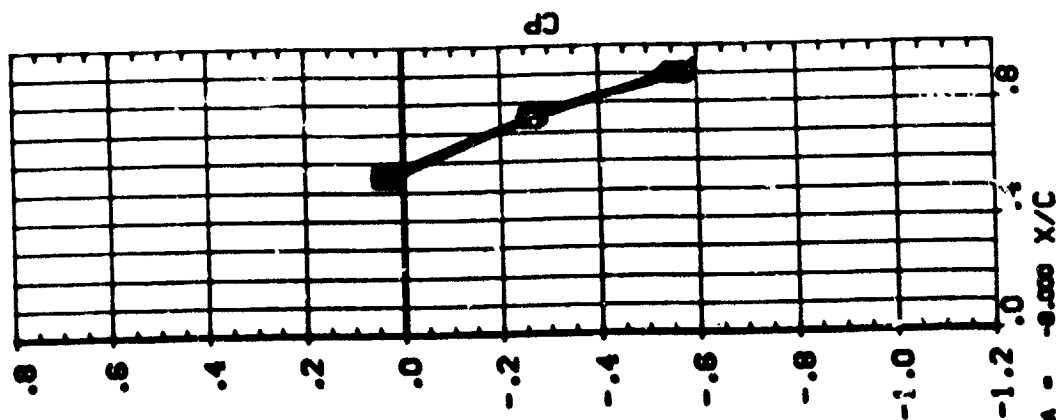
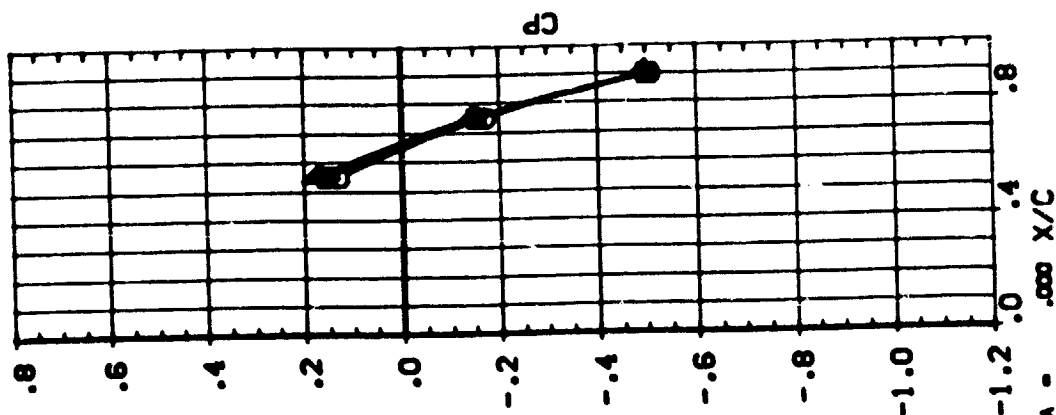
$\Delta T$ (C)	$\Delta H$ (KJ/MOLE)
0.4	-0.25
0.5	-0.10
0.8	0.40

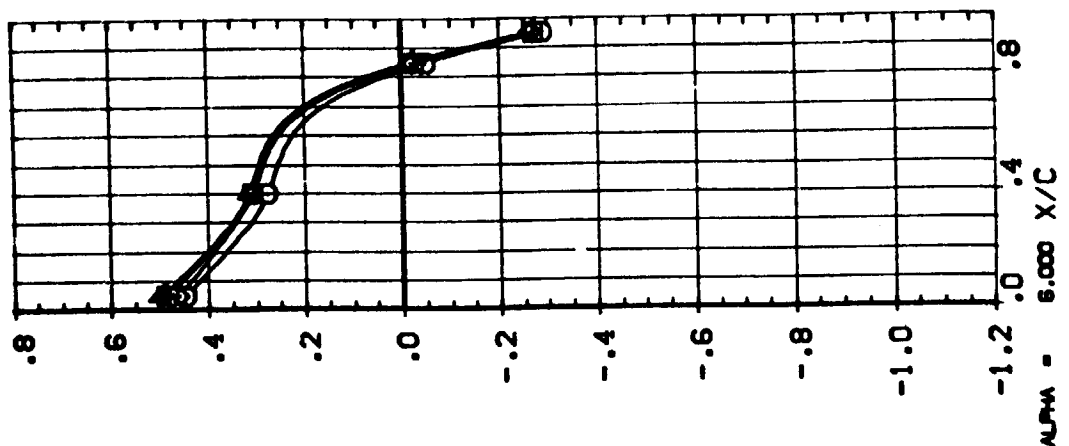
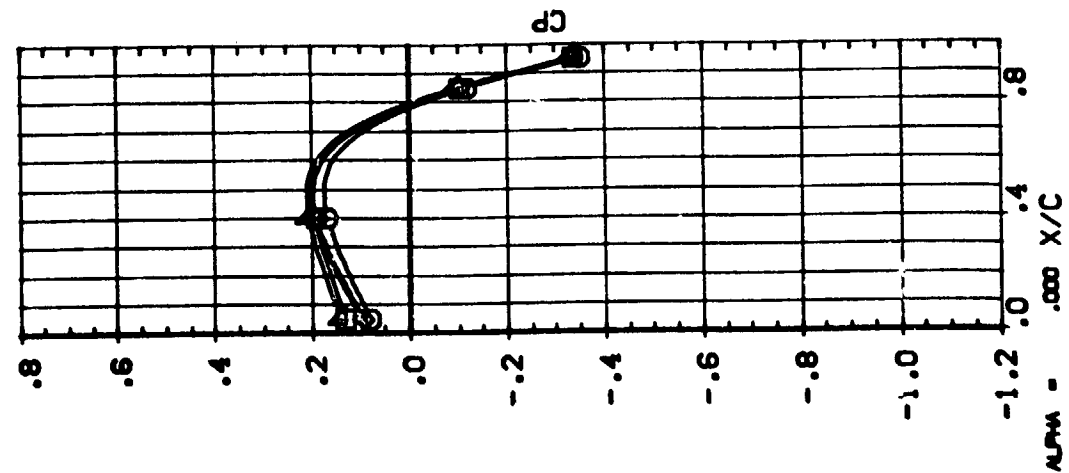
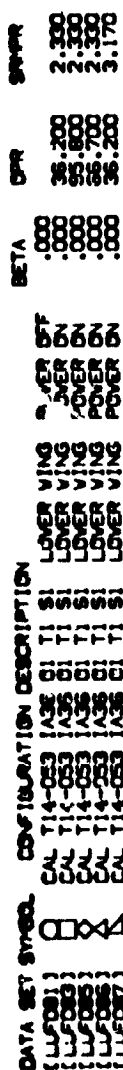
3/18/88 - 10:00 AM

PAGE 446

DATE	TIME	ETA	ETA
12-15-68	12:00	12:00	12:00
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12-17-68	12:00	12:00	12:00
12-18-68	12:00	12:00	12:00
12-19-68	12:00	12:00	12:00
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2-26-69	12:00	12:00	12:00
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2-28-69	12:00	12:00	12:00
2-29-69			

# WING PRESSURE DISTRIBUTION

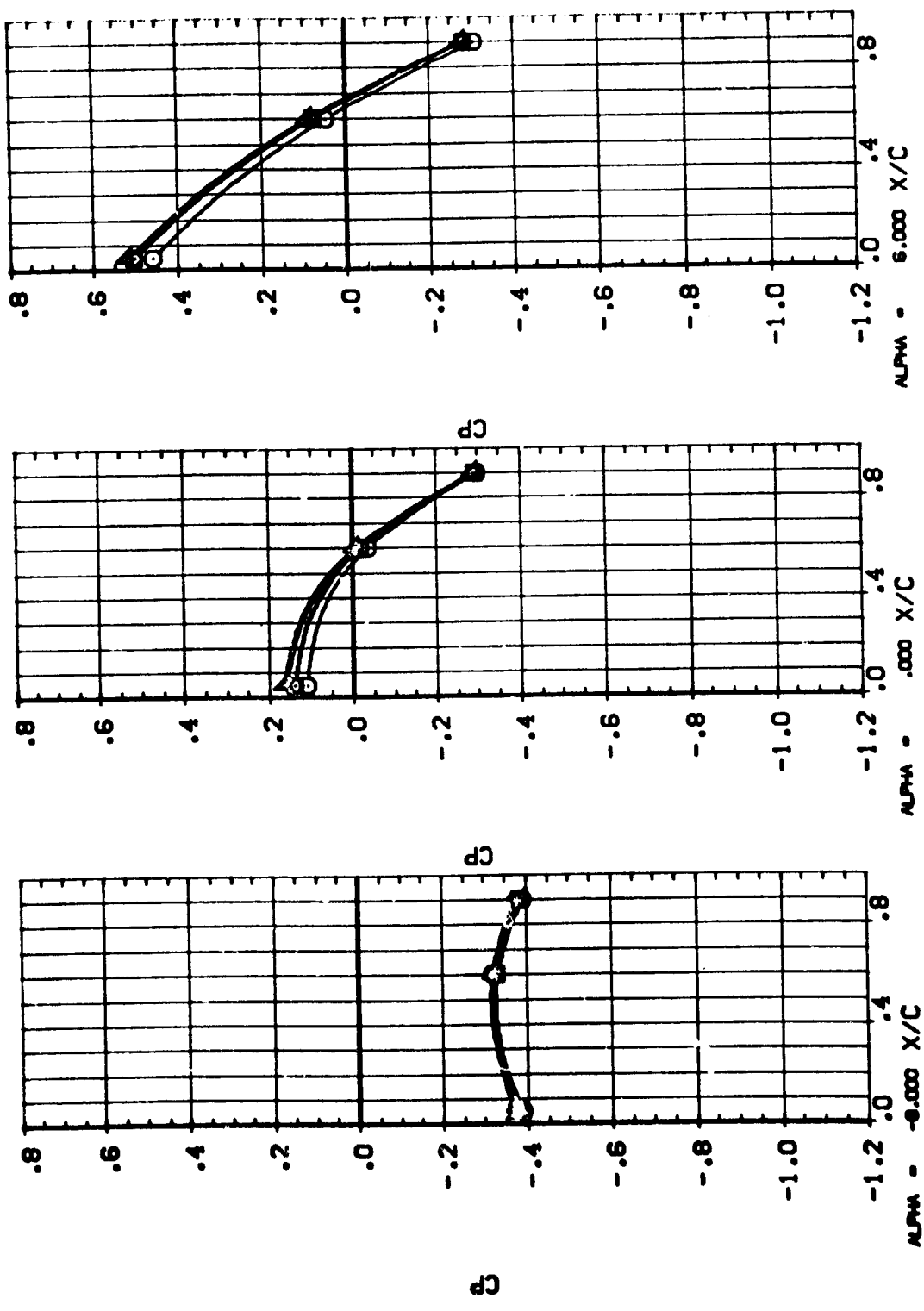




# PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

**MACH = 1.200    ETA = .673**

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	LOWER	VING	POWER	STF	BETA	OPR	SPR
0011	□	11-003	1A36	01	01	01	01	000	36.200	2.300
0012	□	11-003	1A36	01	01	01	01	000	36.200	2.300
0013	□	11-003	1A36	01	01	01	01	000	36.200	2.300
0014	□	11-003	1A36	01	01	01	01	000	36.200	2.300
0015	□	11-003	1A36	01	01	01	01	000	36.200	2.300
0016	□	11-003	1A36	01	01	01	01	000	36.200	2.300
0017	□	11-003	1A36	01	01	01	01	000	36.200	2.300



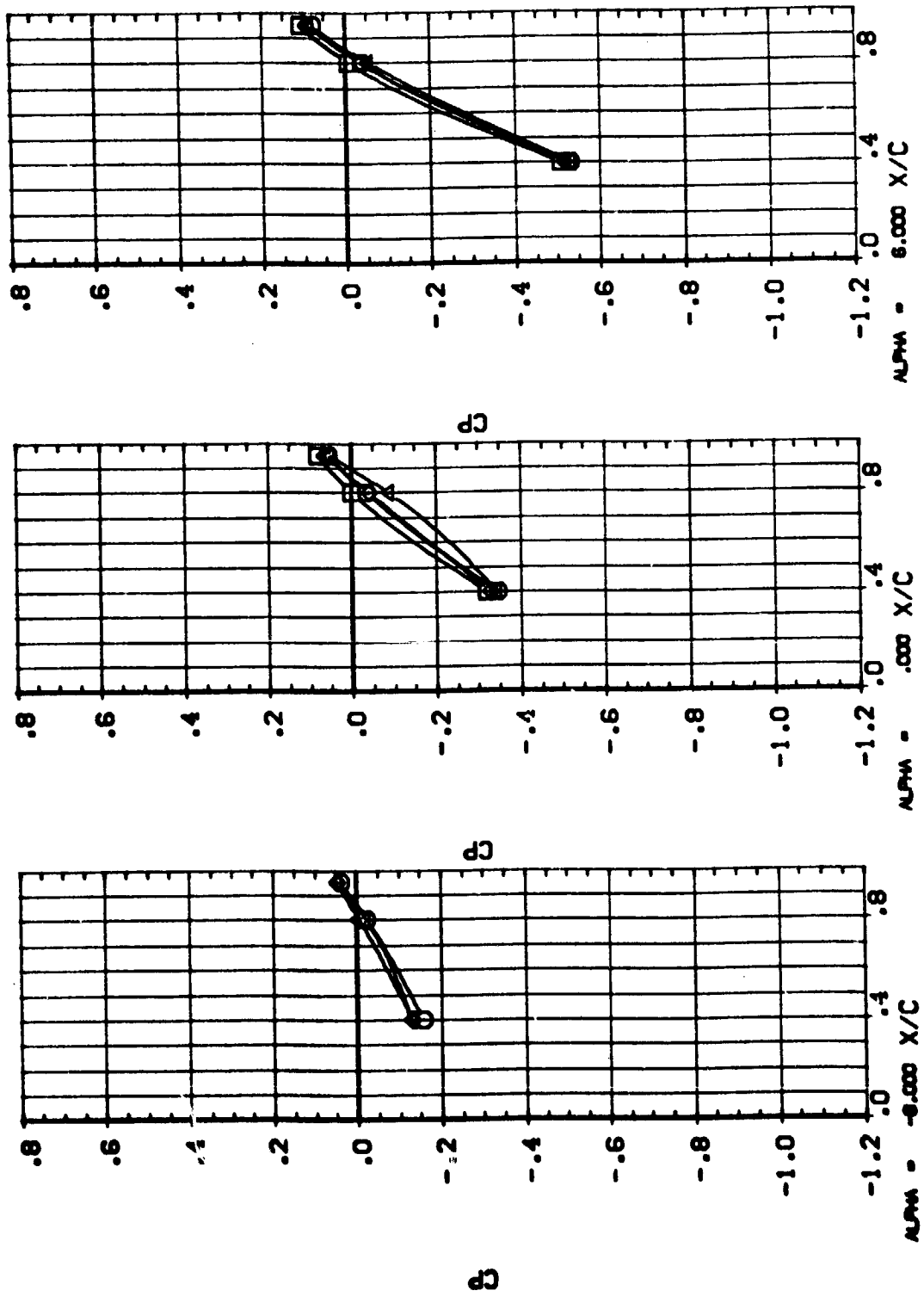
PLUME SIZE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = 1.200 ETA = .887





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	UPPER WING	POWER OFF	CPR	SPR	GP1	GP2	GP4
[J508]	T14-083	ASS 01	TI 01	28.310	2.020	.000	.000	
[J509]	T14-083	ASS 01	TI 01	28.310	2.020	.000	.000	7.000
[J510]	T14-083	ASS 01	TI 01	28.310	2.020	.000	.000	
[J511]	T14-083	ASS 01	TI 01	28.310	2.020	.000	.000	
[J512]	T14-083	ASS 01	TI 01	28.310	2.020	.000	.000	
[J513]	T14-083	ASS 02	TI 01	28.310	2.020	.000	.000	



PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

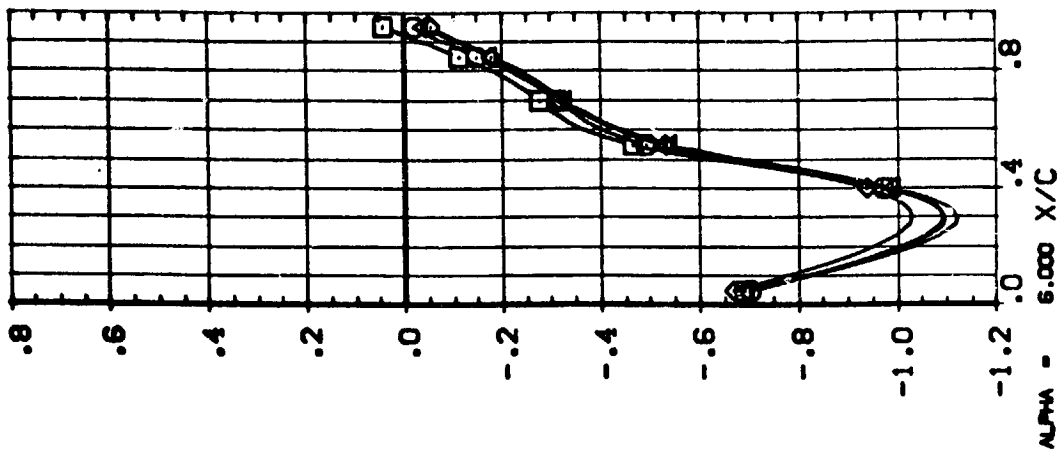
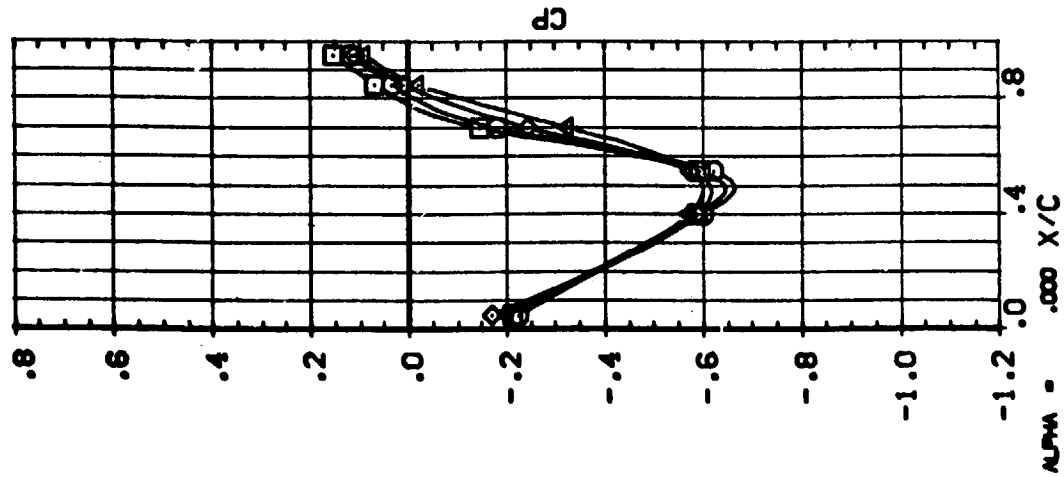
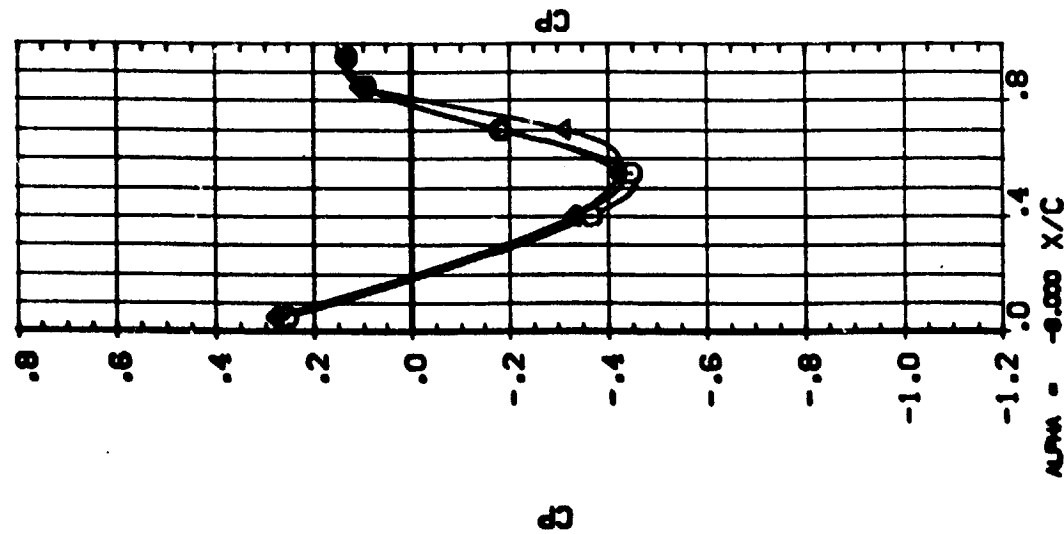




DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 [JF088] T14-088 JAS 01 T1 S1  
 [JF090] T14-088 JAS 01 T1 S1  
 [JF111] T14-088 JAS 01 T1 S1  
 [JF119] T14-088 JAS 02 T1 S1  
 [JF073] T14-088 JAS 02 T1 S1

UPPER VING POWER ON OFF  
 LOWER VING POWER ON ON  
 LOWER VING POWER ON ON  
 LOWER VING POWER ON ON  
 LOWER VING POWER ON ON

CPR 28.310 28.310 28.310 28.310  
 SPWR 2.000 2.000 2.000 2.000  
 CP1 .000 .000 .000 .000  
 CP2 .000 .000 .000 .000  
 CP4 7.000 -7.000



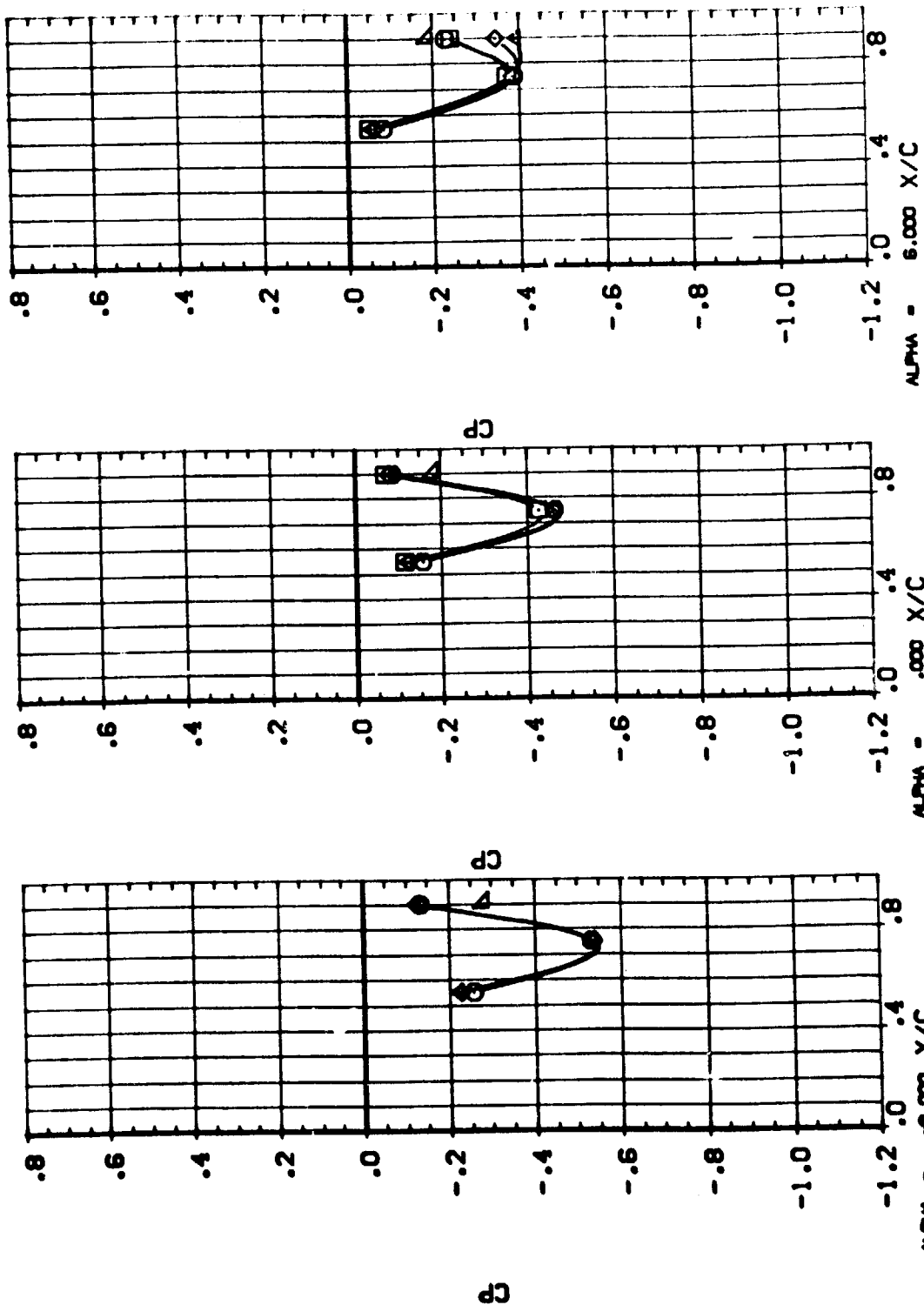
PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

MACH = .900 ETA = .673





DATA SET SYMBOL	CONFIGURATION DESCRIPTION	OPR	SWPR	GP1	GP2	GP4
[LW089]	T14-089 [A36 01 T1 S1	28.310	2.000	.000	.000	
[LW090]	T14-089 [A36 01 T1 S1	28.310	2.000	.000	.000	7.000
[LW091]	T14-089 [A36 01 T1 S1	28.310	2.000	.000	.000	
[LW111]	T14-089 [A36 01 T1 S1	28.310	2.000	.000	.000	
[LW115]	T14-089 [A36 01 T1 S1	28.310	2.000	.000	.000	
[LW073]	T14-089 [A36 01 T1 S1	28.310	2.000	.000	.000	

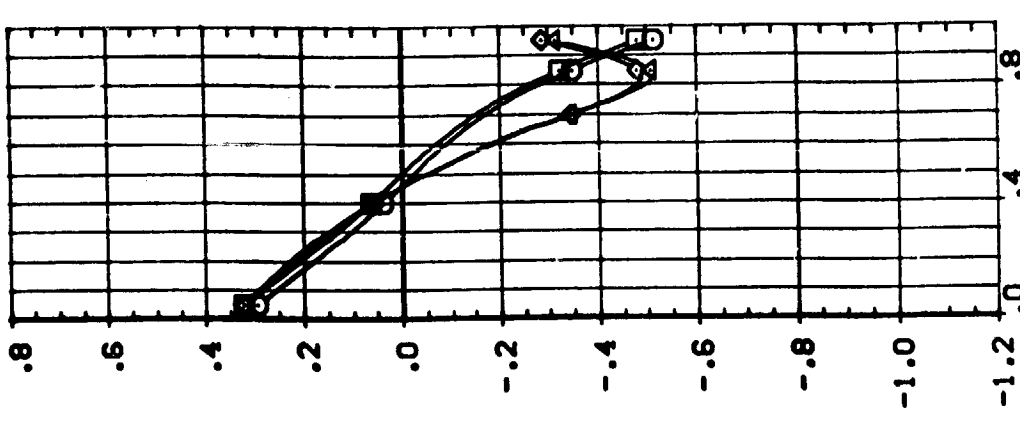
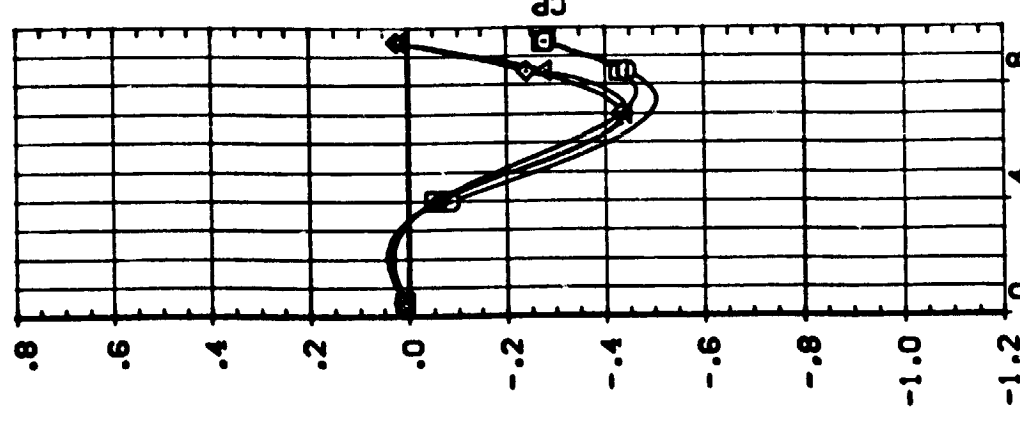
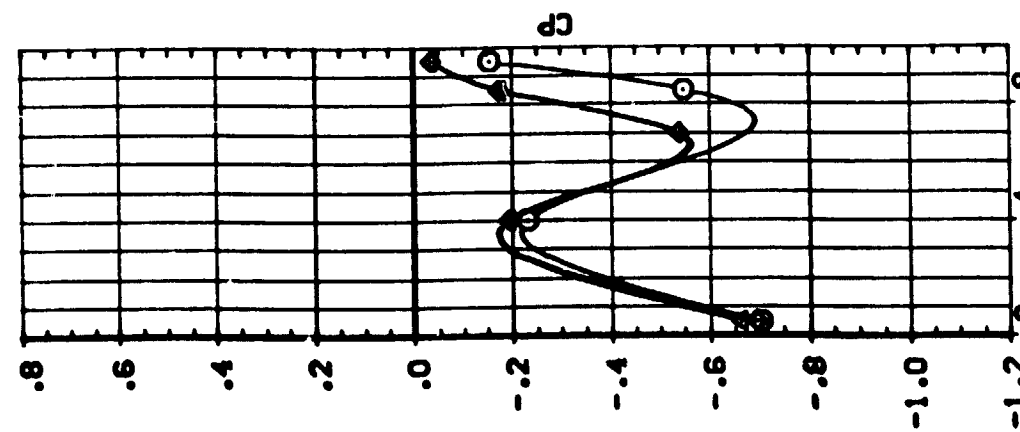


PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

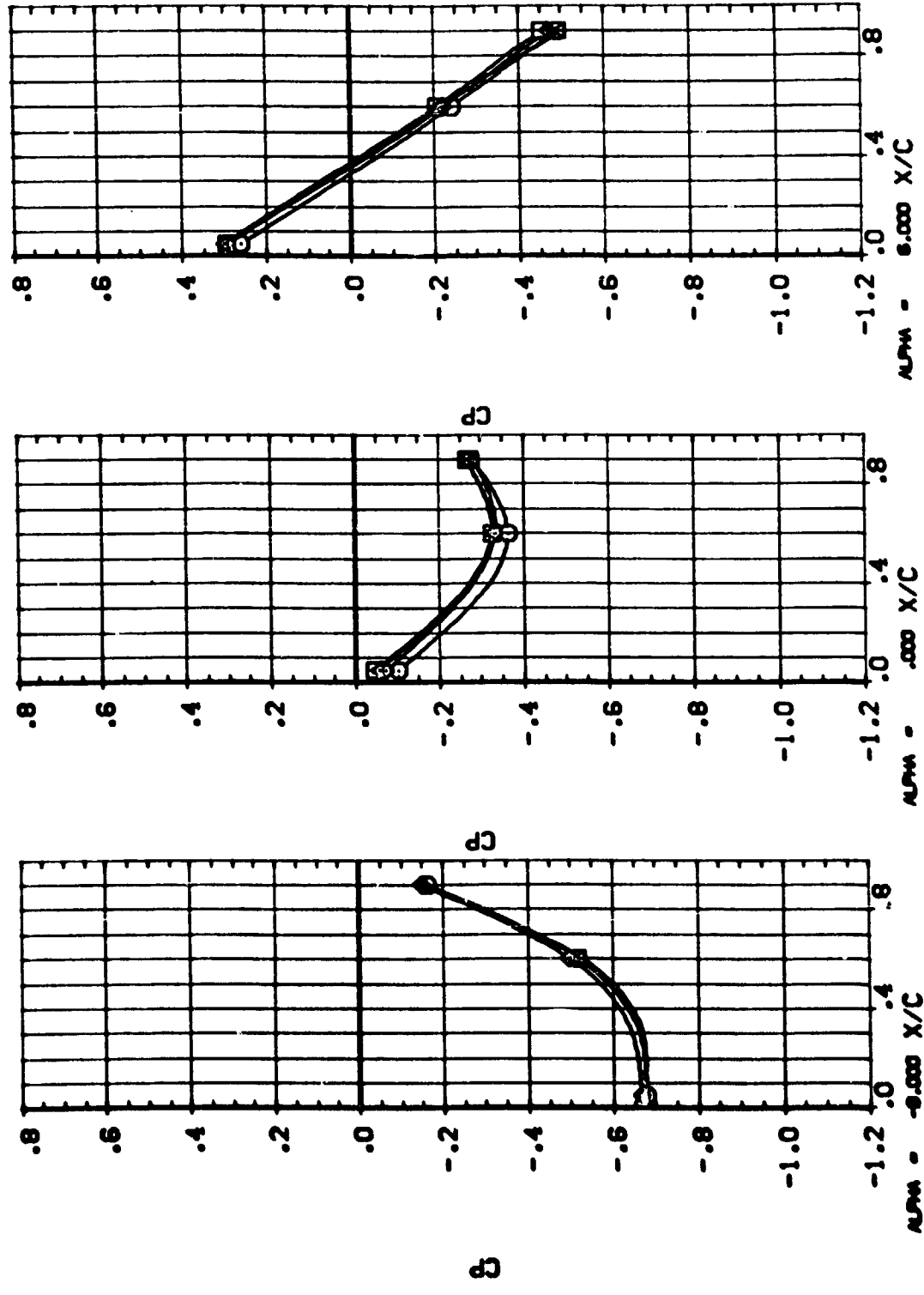
MACH = .900    ETA = .534    ALPHA = -8.000 X/C    ALPHA = .000 X/C    ALPHA = 6.000 X/C    PAGE 454



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LOWER WING	POWER ON	UPR	SPR	OP1	OP2	OP4
[JF080]	□	T14-053 [A35 01 T1 S1	LOWER WING	POWER ON	28.310	2.020	.000	.000	
[JF080]	□	T14-053 [A35 01 T1 S1	LOWER WING	POWER ON	28.310	2.020	.000	.000	
[JF111]	□	T14-053 [A35 01 T1 S1	LOWER WING	POWER ON	28.310	2.020	.000	.000	
[JF111]	□	T14-053 [A35 01 T1 S1	LOWER WING	POWER ON	28.310	2.020	.000	.000	
[JF073]	□	T14-053 [A35 02 T1 S1	LOWER WING	POWER ON	28.310	2.020	.000	.000	

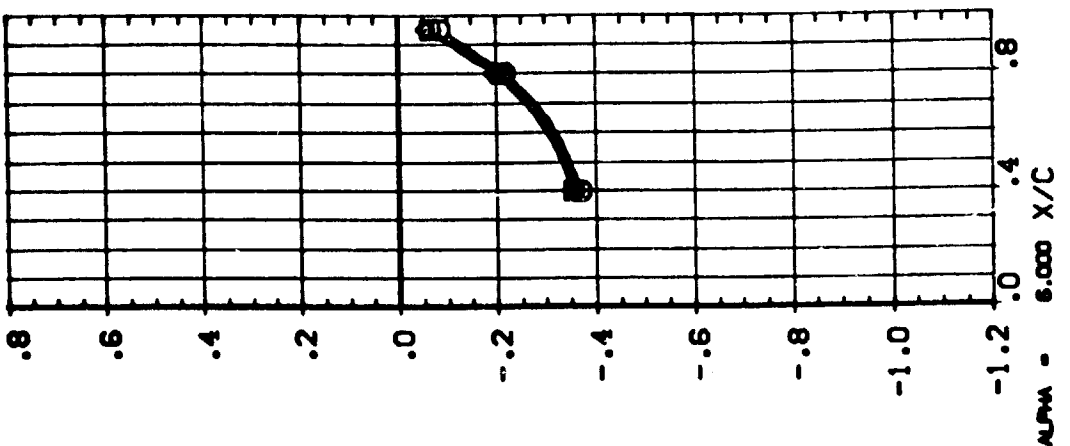


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	OPR	SPR	OP1	OP2	OP4
[UJ088]	CAI T14-088 [A35 01 T1 S1]	28.310	2.020	.000	.000	7.000
[UJ089]	CAI T14-089 [A35 01 T1 S1]	28.310	2.020	.000	.000	-7.000
[UJ090]	CAI T14-090 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ091]	CAI T14-091 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ092]	CAI T14-092 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ093]	CAI T14-093 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ094]	CAI T14-094 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ095]	CAI T14-095 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ096]	CAI T14-096 [A35 01 T1 S1]	28.310	2.020	.000	.000	
[UJ097]	CAI T14-097 [A35 01 T1 S1]	28.310	2.020	.000	.000	



PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS



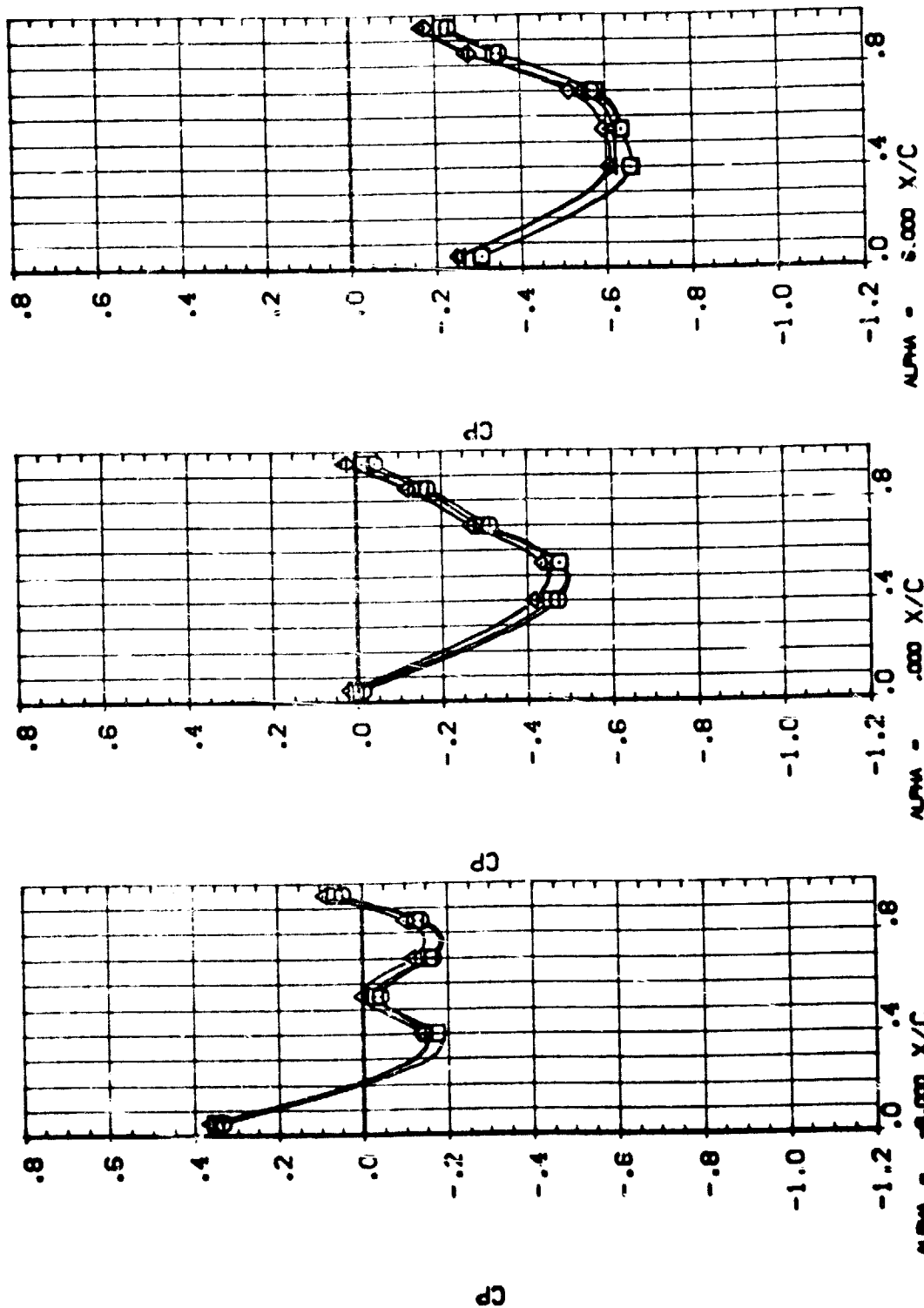
[illegible]

# PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

$$\text{MACH} = 1.200 \quad \text{ETA} = .427$$



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	UPPER WING	POWER	CF	CDR	SPWR	SP1	SP2	SP4
000000	T14-0000	01	01	01	01	01	01	01	01
000001	T14-0001	01	01	01	01	01	01	01	01
000002	T14-0002	01	01	01	01	01	01	01	01
000003	T14-0003	01	01	01	01	01	01	01	01
000004	T14-0004	01	01	01	01	01	01	01	01
000005	T14-0005	01	01	01	01	01	01	01	01
000006	T14-0006	01	01	01	01	01	01	01	01
000007	T14-0007	01	01	01	01	01	01	01	01



PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

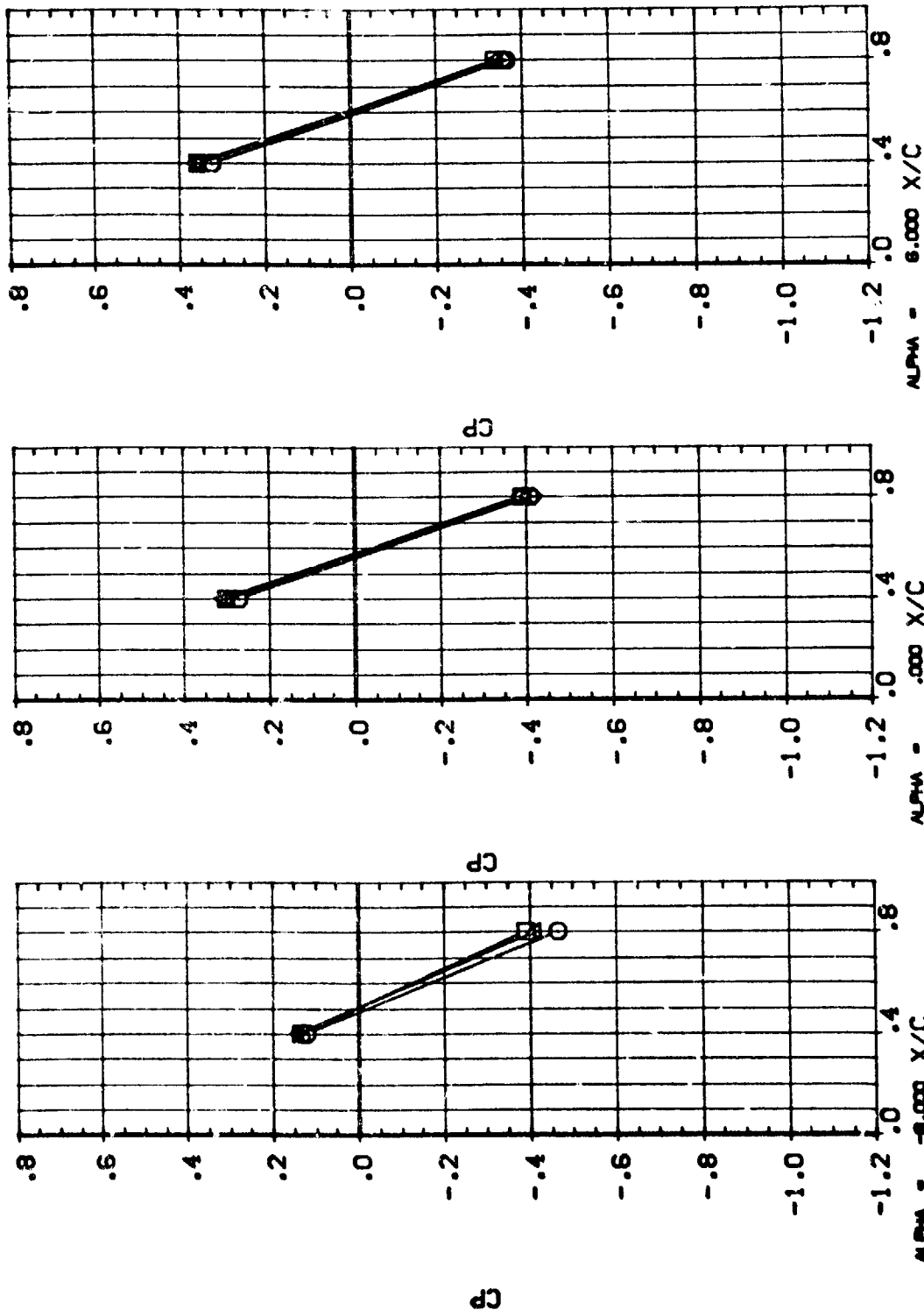
MACH = 1.200 ETA = .673





DATA SET SYM. CONFIGURATION DESCRIPTION

DATA SET SYM.	CONFIGURATION	DESCRIPTION	LOWER VING	POWER IN	OPR	SPR	GP1	GP2	GP4
[LUF081]	14-053	A36 01 T1 S1	LOWER VING	POWER IN	36:200	2:200	0.000	0.000	0.000
[LUF083]	14-053	A36 01 T1 S1	LOWER VING	POWER IN	36:200	2:200	0.000	0.000	0.000
[LUF109]	14-053	A36 01 T1 S1	LOWER VING	POWER IN	36:200	2:200	0.000	0.000	0.000
[LUF113]	14-053	A36 01 T1 S1	LOWER VING	POWER IN	36:200	2:200	0.000	0.000	0.000
[LUF077]	14-053	A36 02 T1 S1	LOWER VING	POWER IN	36:200	2:200	0.000	0.000	0.000



PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

DATA SET SYMBOL: [LUP081] [LUP082] [LUP083] [LUP084] [LUP085] [LUP086] [LUP087]

CONFIGURATION DESCRIPTION: CAL T14-053 [A38 01 T1 S1] [A38 01 T1 S1] [A38 01 T1 S1] [A38 01 T1 S1] [A38 01 T1 S1] [A38 01 T1 S1] [A38 01 T1 S1]

LOWER VING POWER OFF POWER ON POWER ON POWER ON POWER ON POWER ON POWER ON

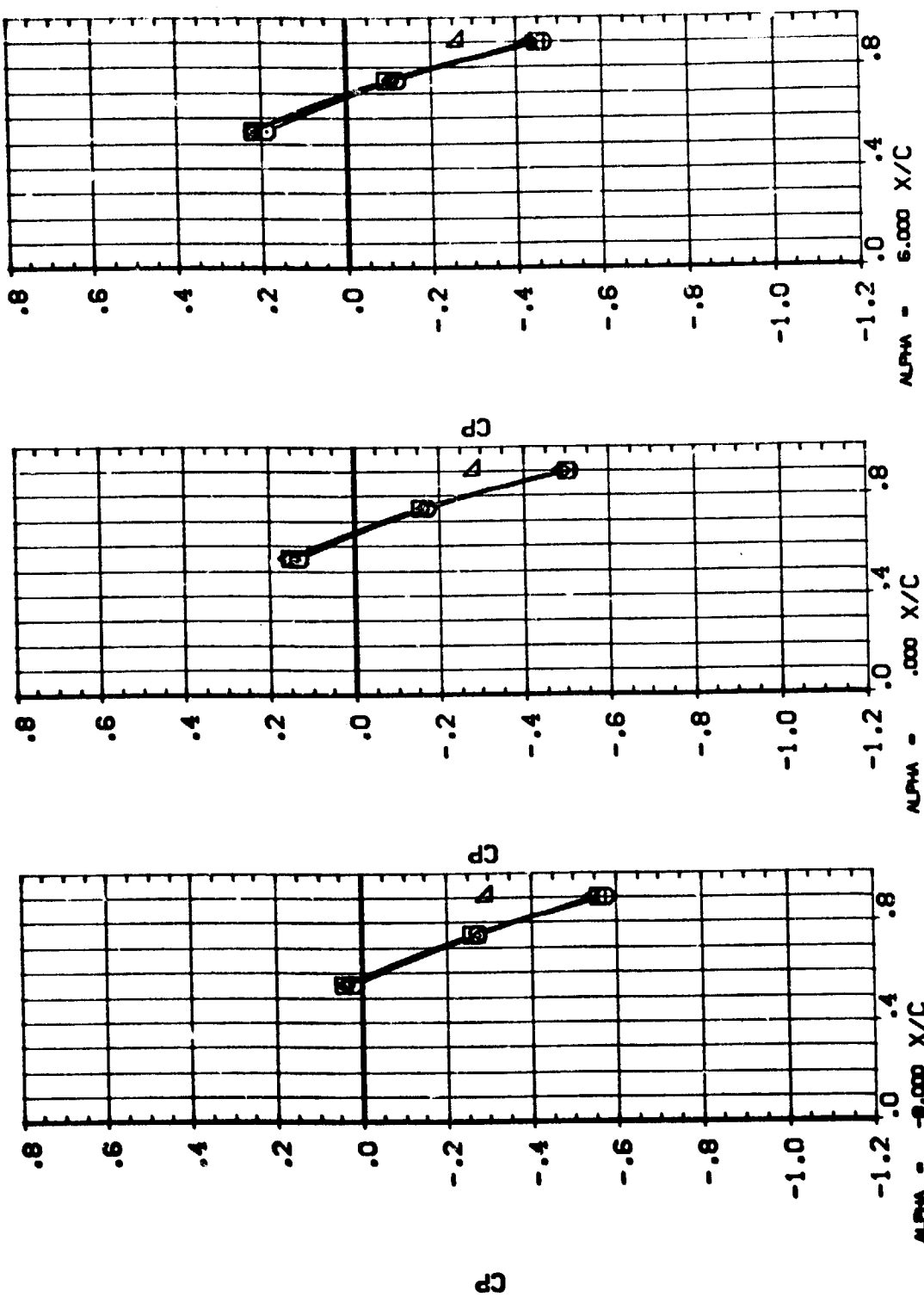
CPR 36.200 36.200 36.200 36.200 36.200 36.200 36.200

SWPR 2.300 2.300 2.300 2.300 2.300 2.300 2.300

GP1 .000 .000 .000 .000 .000 .000 .000

GP2 .000 .000 .000 .000 .000 .000 .000

GP4 7.000 7.000 7.000 7.000 7.000 7.000 7.000

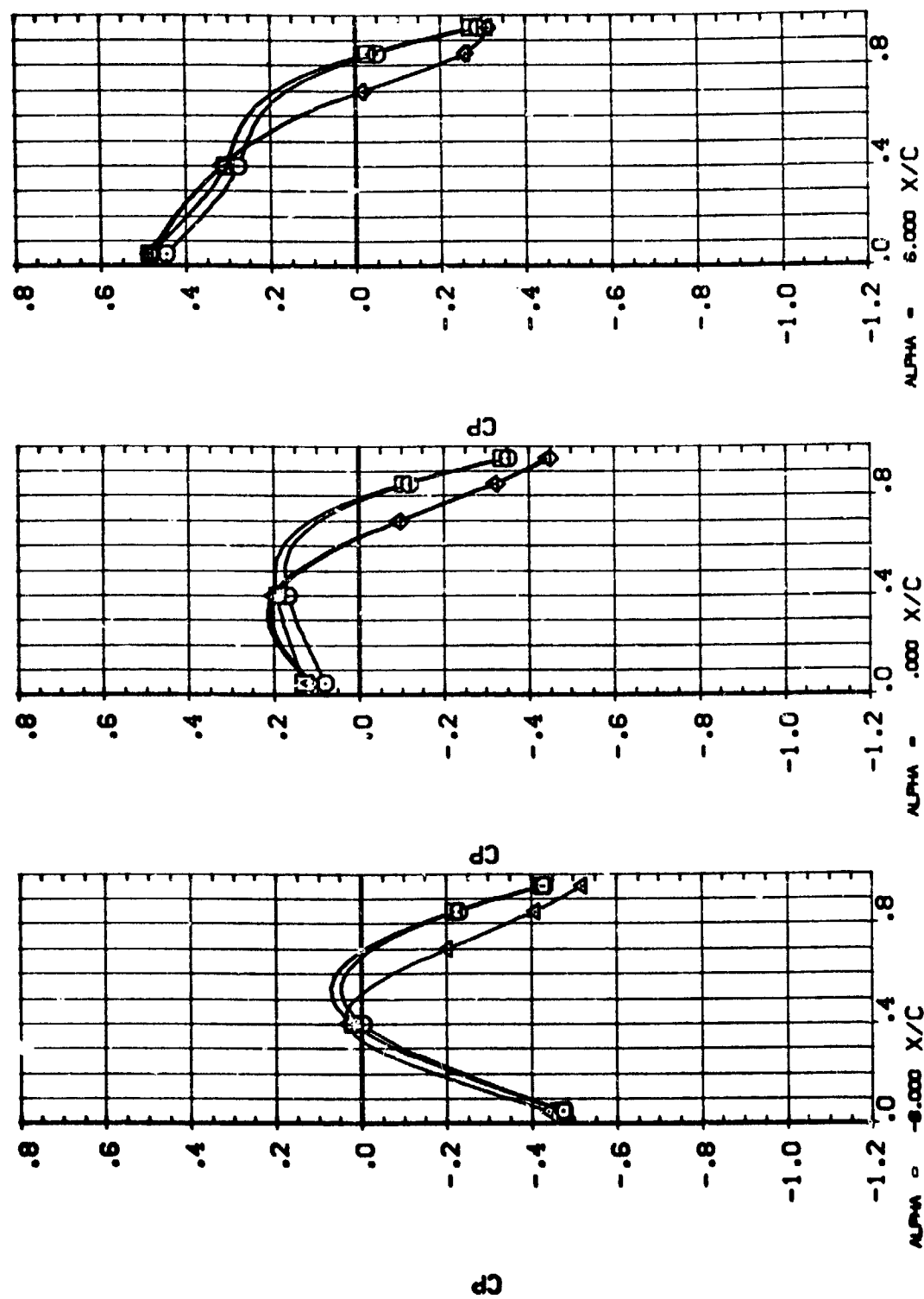


PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

MACH = 1.200 ETA = .534 ALPHA = -8.000 X/C ALPHA = .000 X/C ALPHA = 6.000 X/C

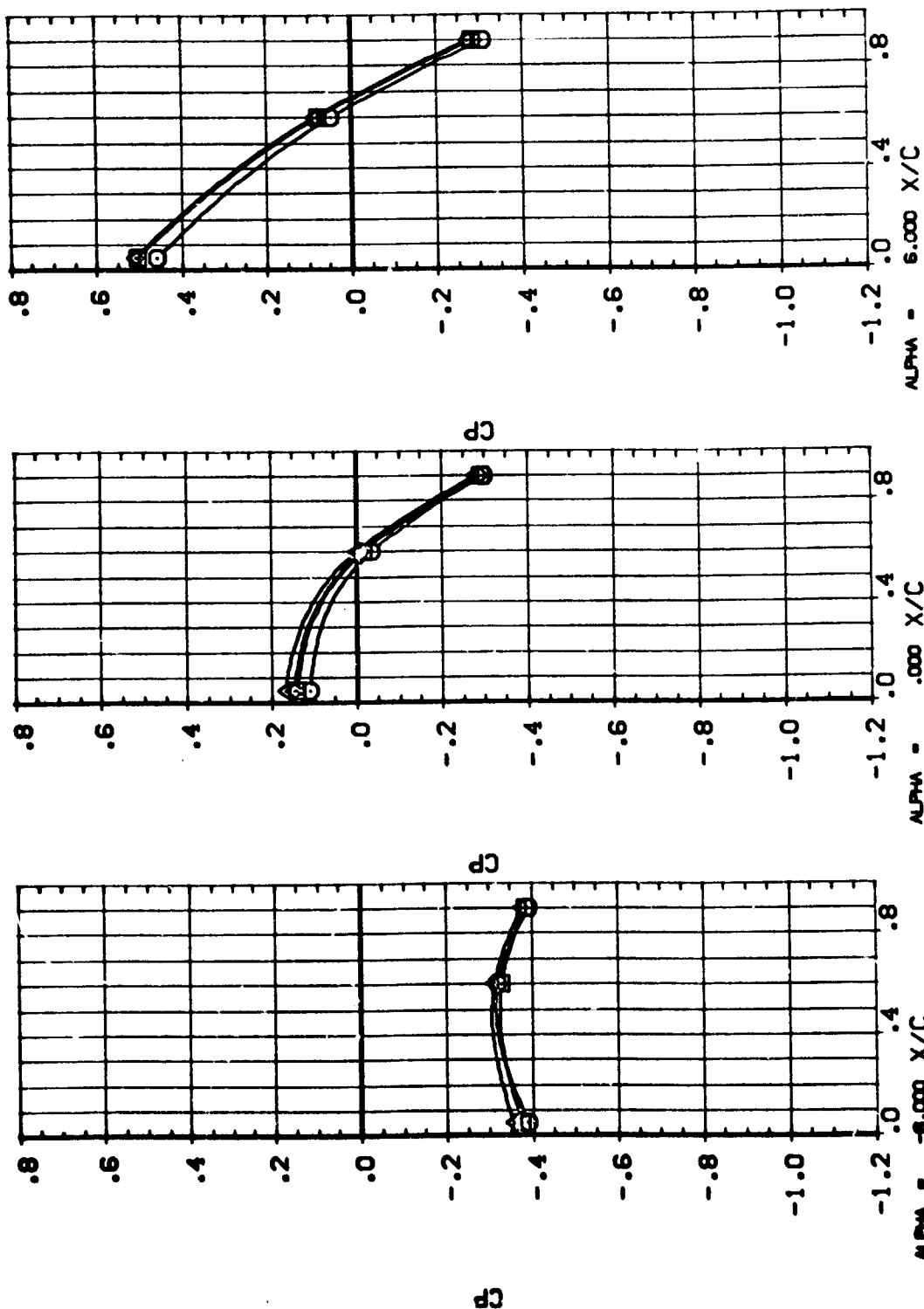


DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LOWER WING	POWER OFF	CPR	SPWR	CP1	CP2	CP4
[LUF081]	CAL T14-053 IAS6 01 T1 S1	LOWER WING	POWER OFF	36.200	2.330	.000	.000	.000
[LUF083]	CAL T14-053 IAS6 01 T1 S1	LOWER WING	POWER ON	36.200	2.330	.000	.000	7.000
[LUF109]	CAL T14-053 IAS6 01 T1 S1	LOWER WING	POWER ON	36.200	2.330	.000	.000	.000
[LUF113]	CAL T14-053 IAS6 01 T1 S1	LOWER WING	POWER ON	36.200	2.330	.000	.000	.000
[LUF577]	CAL T14-053 IAS6 02 T1 S1	LOWER WING	POWER ON	36.200	2.330	.000	.000	.000



PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LOWER VING	POWER OFF	OPR	SWPR	GP1	GP2	GP4
[LW081]	CAL T14-053 [A36 01 T1 S1]	LOWER VING	POWER OFF	36.200	2.300	.000	.000	
[LW083]	CAL T14-053 [A36 01 T1 S1]	LOWER VING	POWER ON	36.200	2.300	.000	.000	7.000
[LW103]	CAL T14-053 [A36 01 T1 S1]	LOWER VING	POWER ON	36.200	2.300	.000	.000	-7.000
[LW113]	CAL T14-053 [A36 02 T1 S1]	LOWER VING	POWER ON	36.200	2.300	.000	.000	
[LW077]	CAL T14-053 [A36 02 T1 S1]	LOWER VING	POWER ON	36.200	2.300	.000	.000	



PLUME AND NOZZLE GIMBAL ANGLE EFFECTS ON WING PRESSURE DISTRIBUTIONS

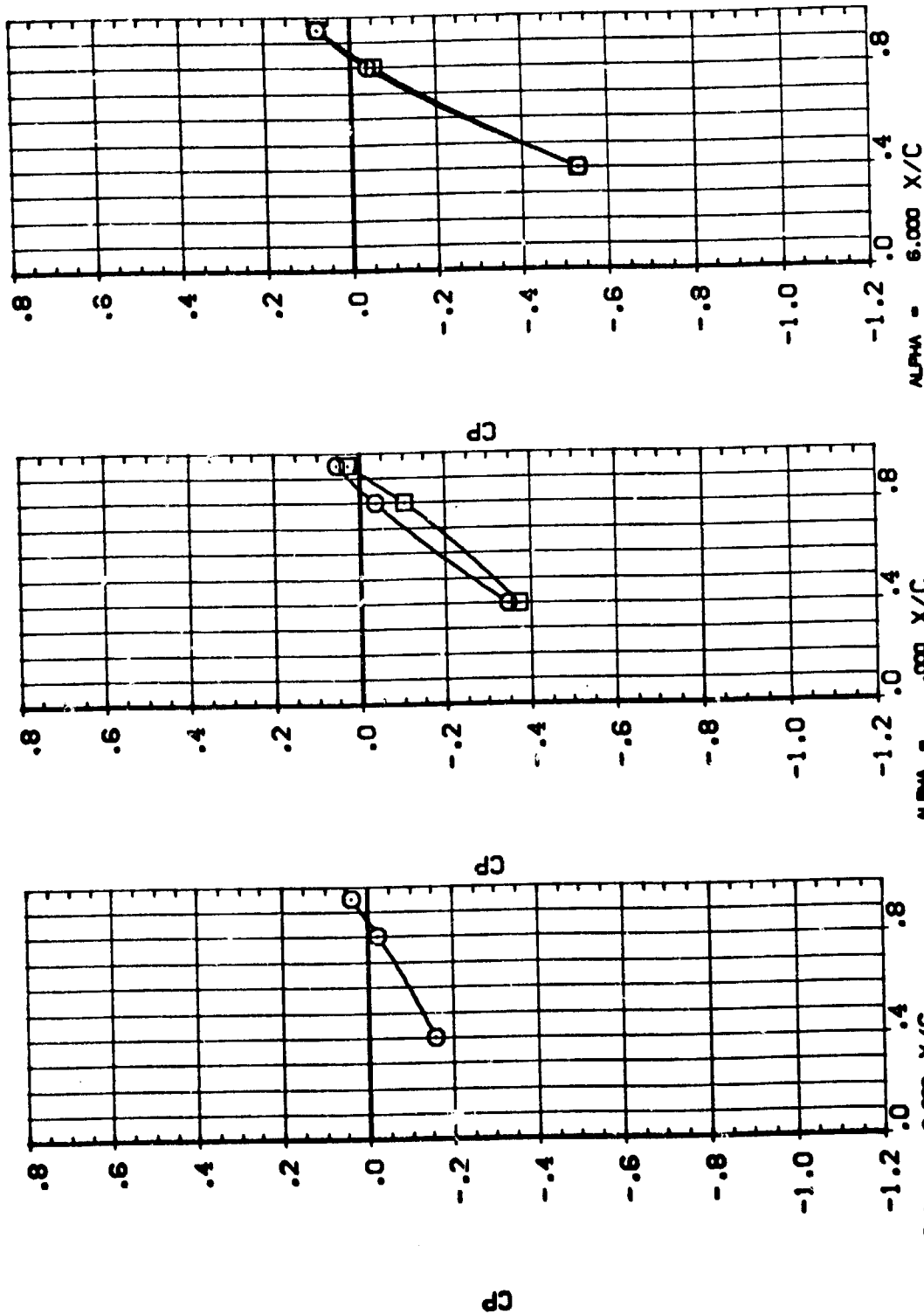
MACH = 1.200 ETA = .887





DATA SET SYMBOL: VIBRATION DESCRIPTION: UPPER WING POWER OFF  
 [UJ089] CAL T14-053 IAS6 01 T1 S1  
 [UJ119] CAL T14-053 IAS6 01 T1 S1

BETA 0°1 0°2 0°4 0°72  
 .000 .000 .000 .000  
 .000 .000 .000 .000  
 -3.500 -3.500



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900 ETA = .427

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[UAF088] [UAF118]

CAL T14-053 [A38 01 T] S1 UPPER WING  
CAL T14-053 [A38 01 T] S1 UPPER WING

POWER OFF POWER OFF

BETA

0°1

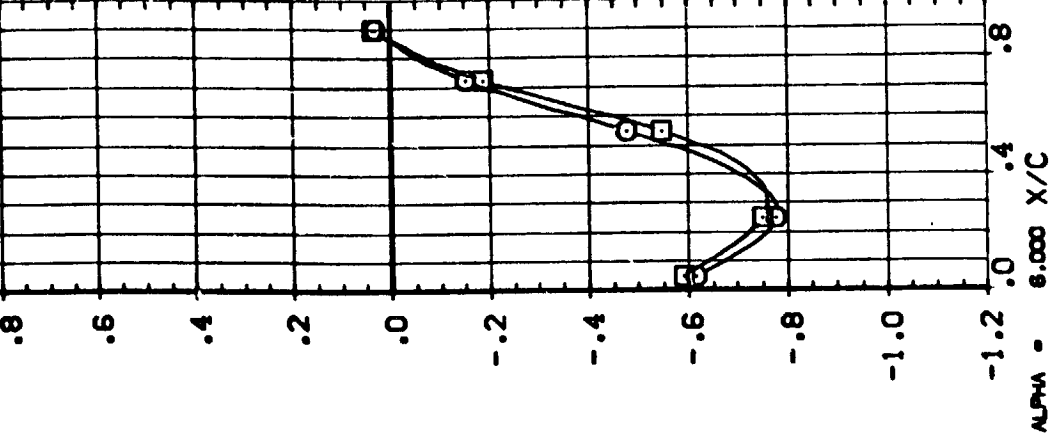
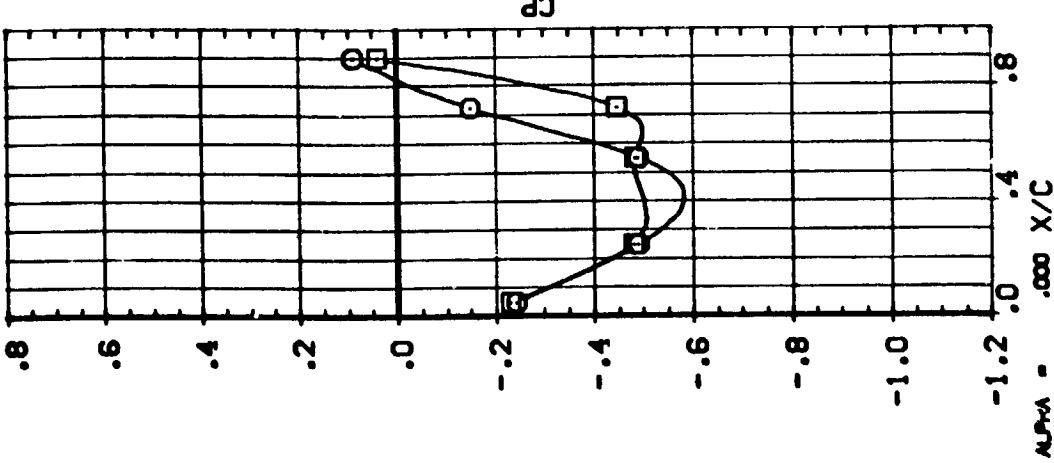
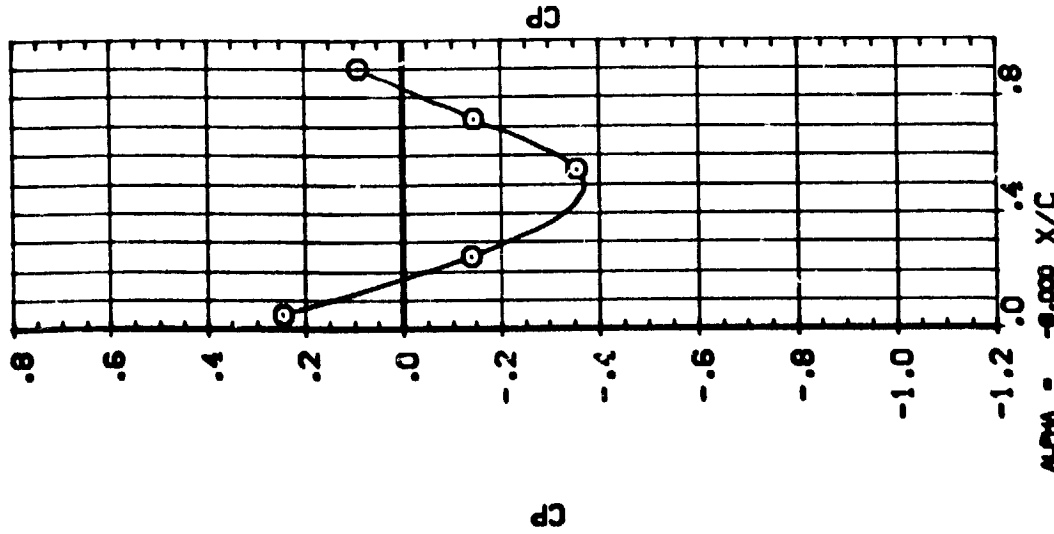
0°2

0°4

0°2

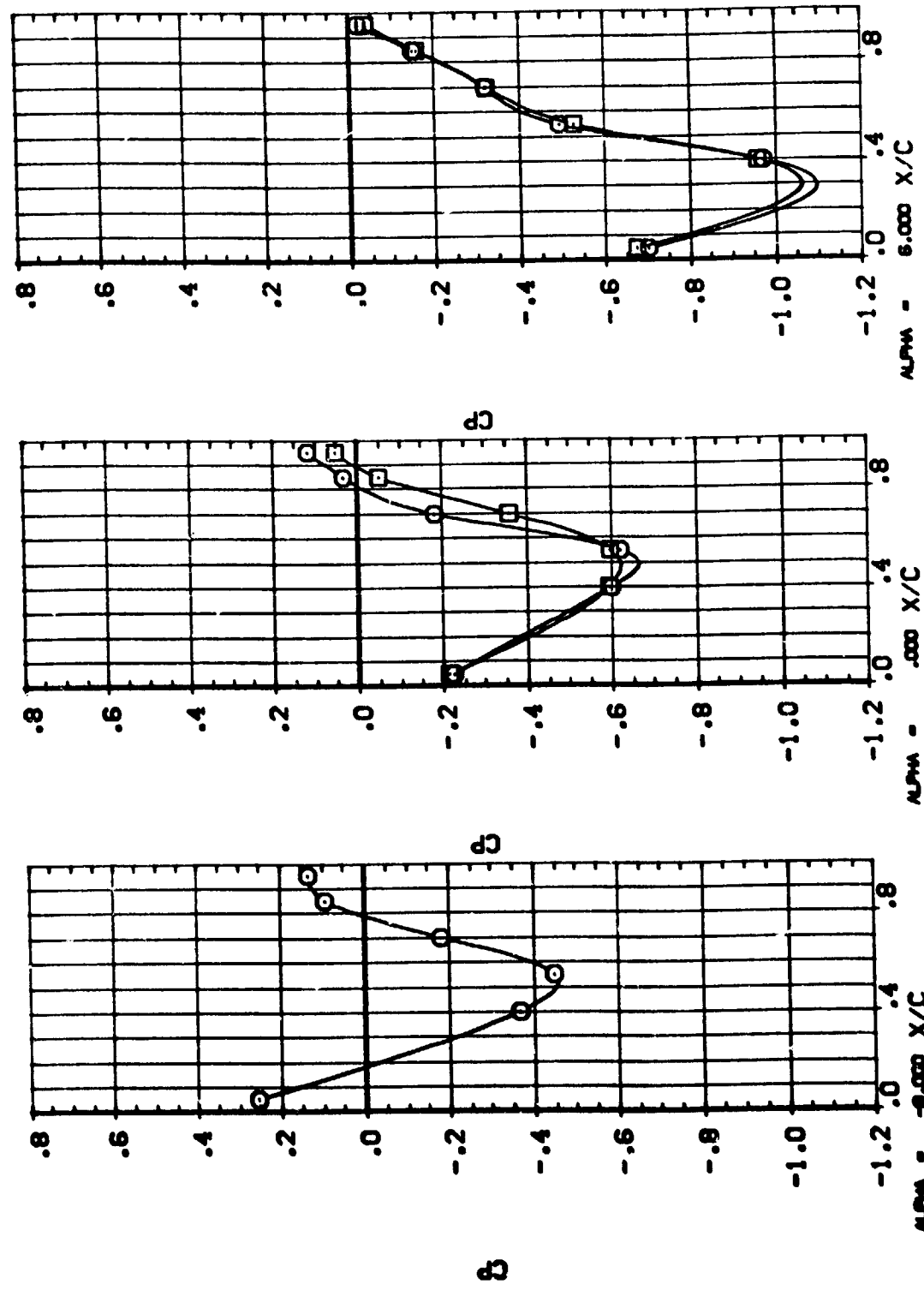
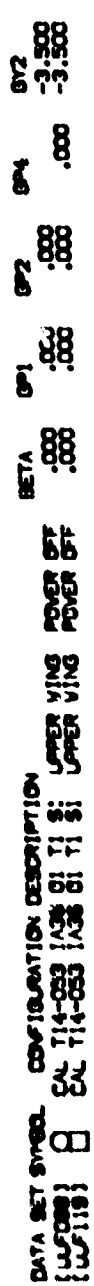
.000 .000 .000 .000

-3.500 -3.500



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900 ETA = .534

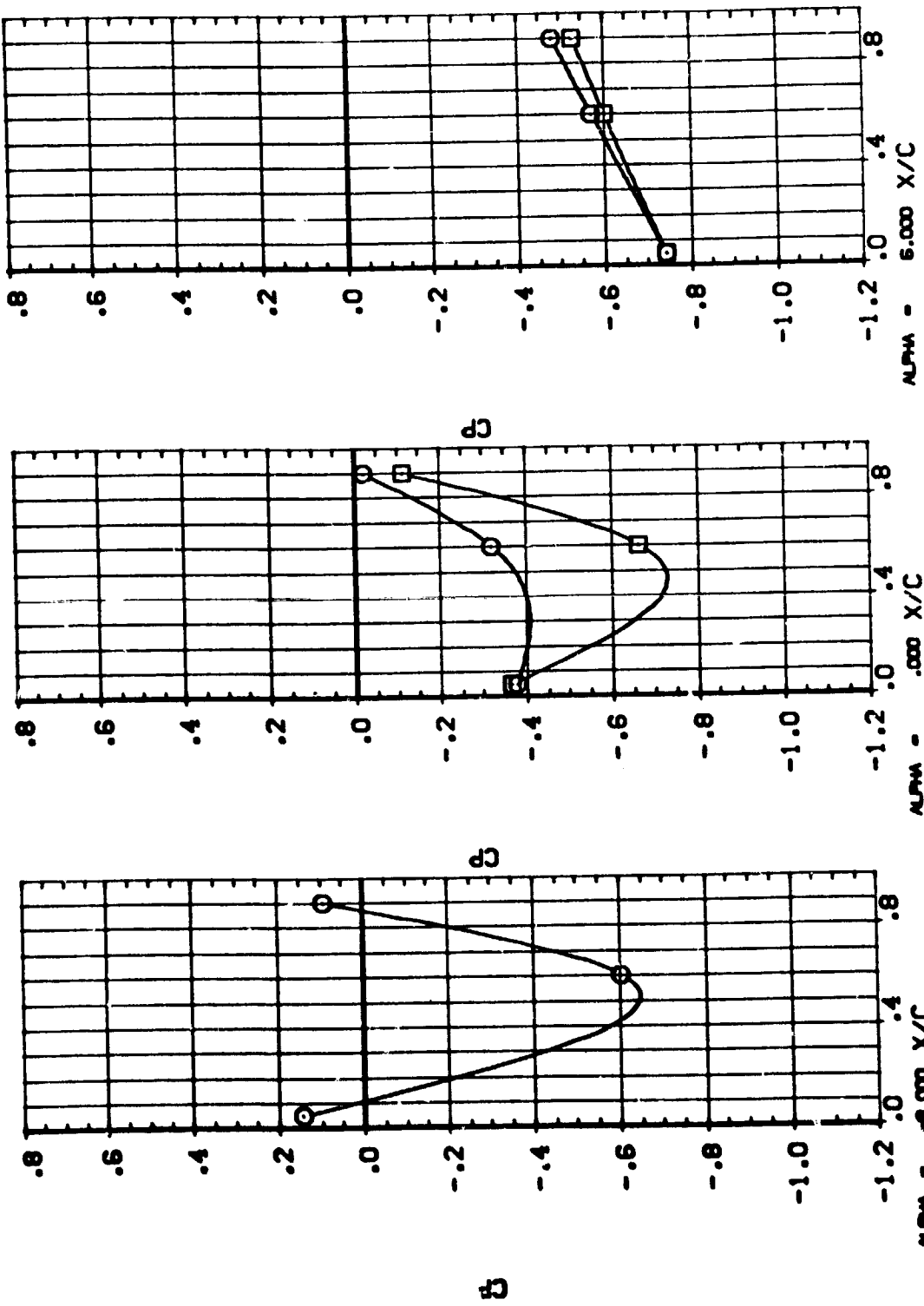


# WING AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900    ETA = .673

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (UPPER) CAL T14-053 IAS 01 T1 S1 UPPER WING POWER OFF  
 (UPPER) CAL T14-053 IAS 01 T1 S1 UPPER WING POWER OFF

BETA .000 .000 .000  
 DP1 .000 .000 .000  
 DP2 .000 .000 .000  
 DP4 .000 .000 .000  
 DP2 -3.500  
 DP2 -3.500



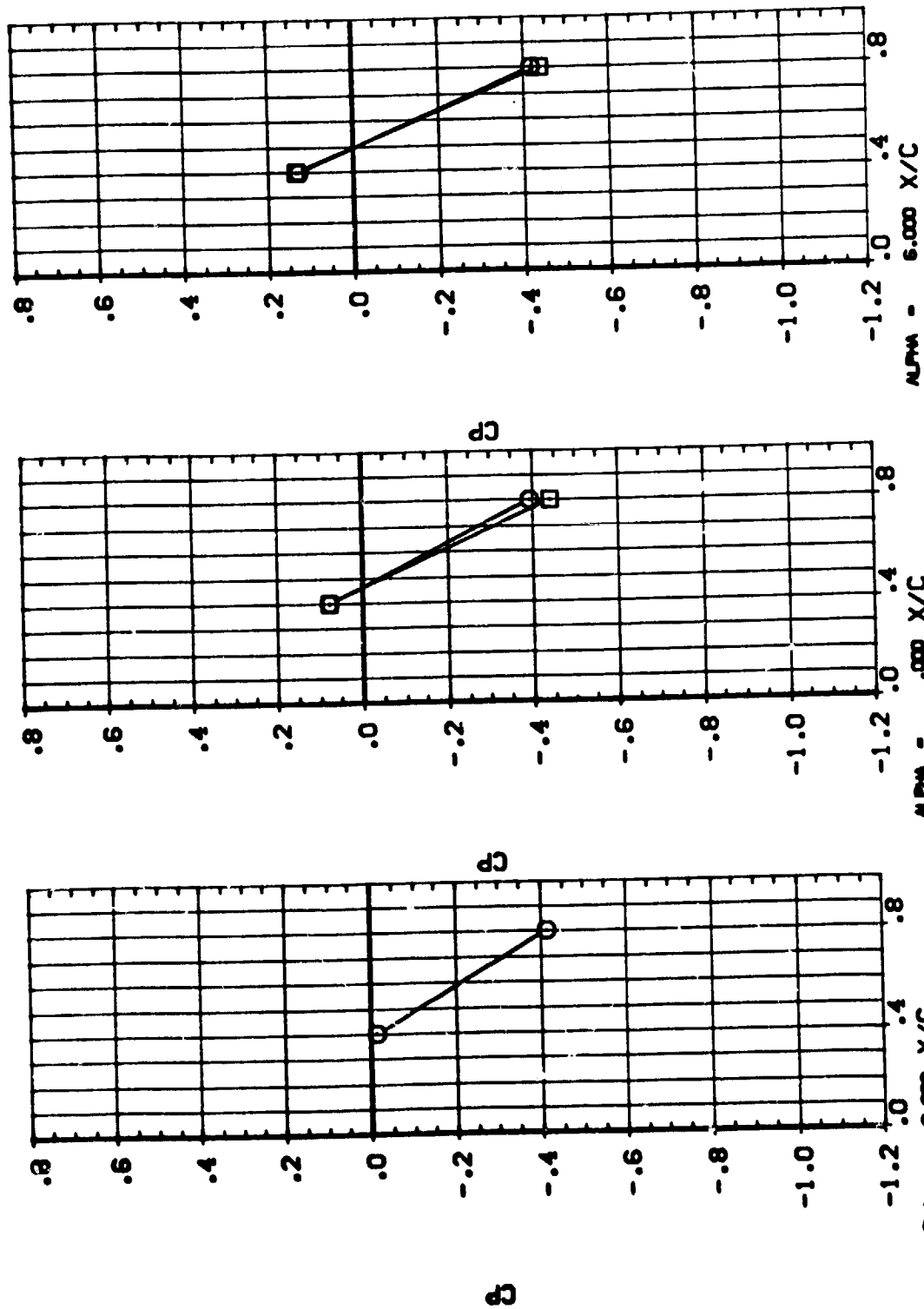
HCSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900 ETA = .887



DATA SET SYMBOL: CAL T14-053 [A35 01 T1 S1] LOWER WING POWER OFF  
 [WUP088] [WUP119] CAL T14-053 [A35 01 T1 S1] LOWER WING POWER OFF

BETA .000 .000 .000  
 SP1 .000 .000 .000  
 SP2 .000 .000 .000  
 SP4 .000 .000 .000  
 SP2 -3.500  
 SP2 -3.500



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900  $\epsilon$ TA = .427

	LOWER VING	POWER OFF
119	119	119
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252

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2



**ETA**

450 83104  
450 83104

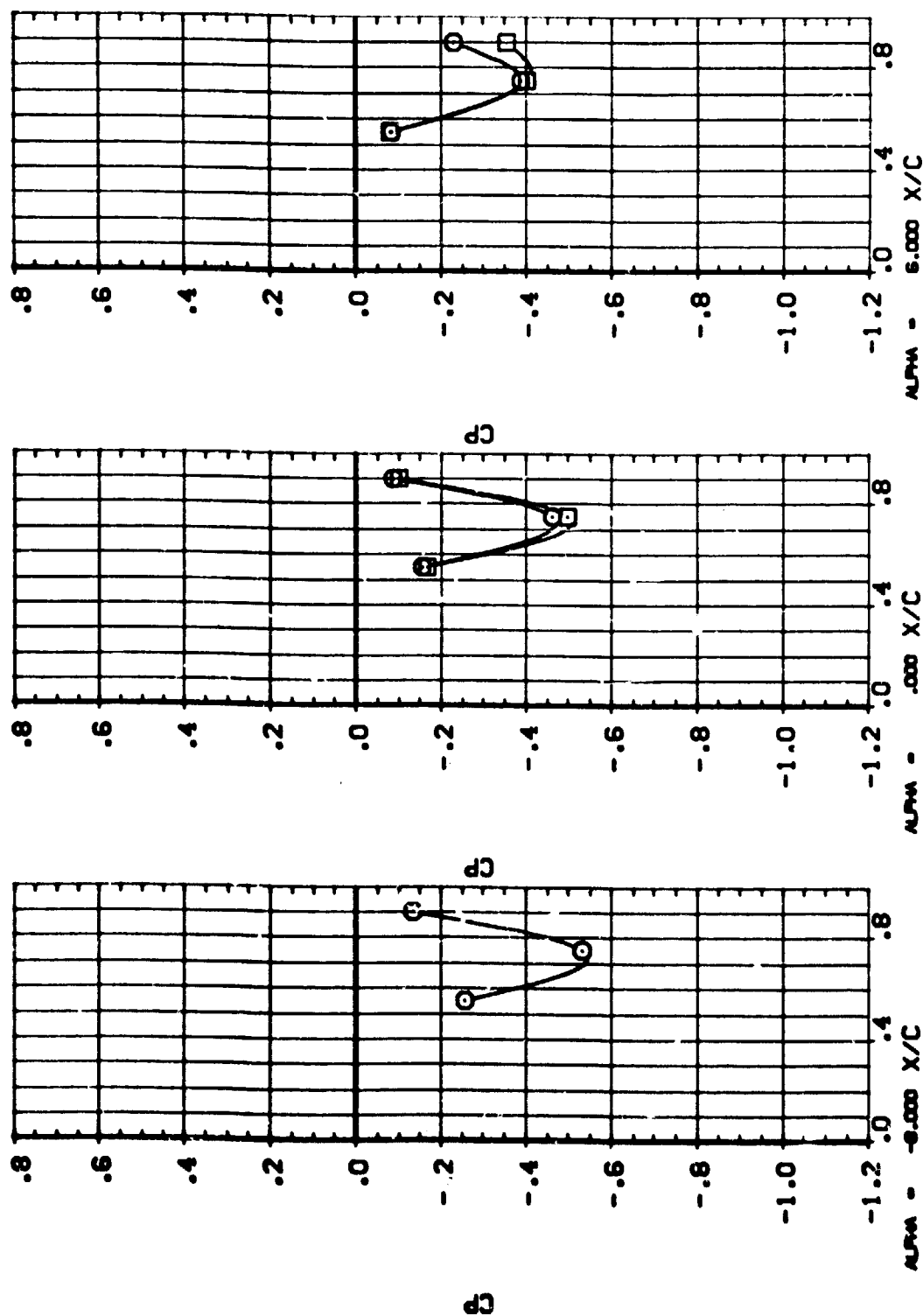
LOVER VING  
LOVER VING

DESCRIPTION	DATE	TIME	BY
11	11	11	11
11	11	11	11

1A36	1A36	1A36
1A36	1A36	1A36
1A36	1A36	1A36

11-11-11

DATA SET SYM



# HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

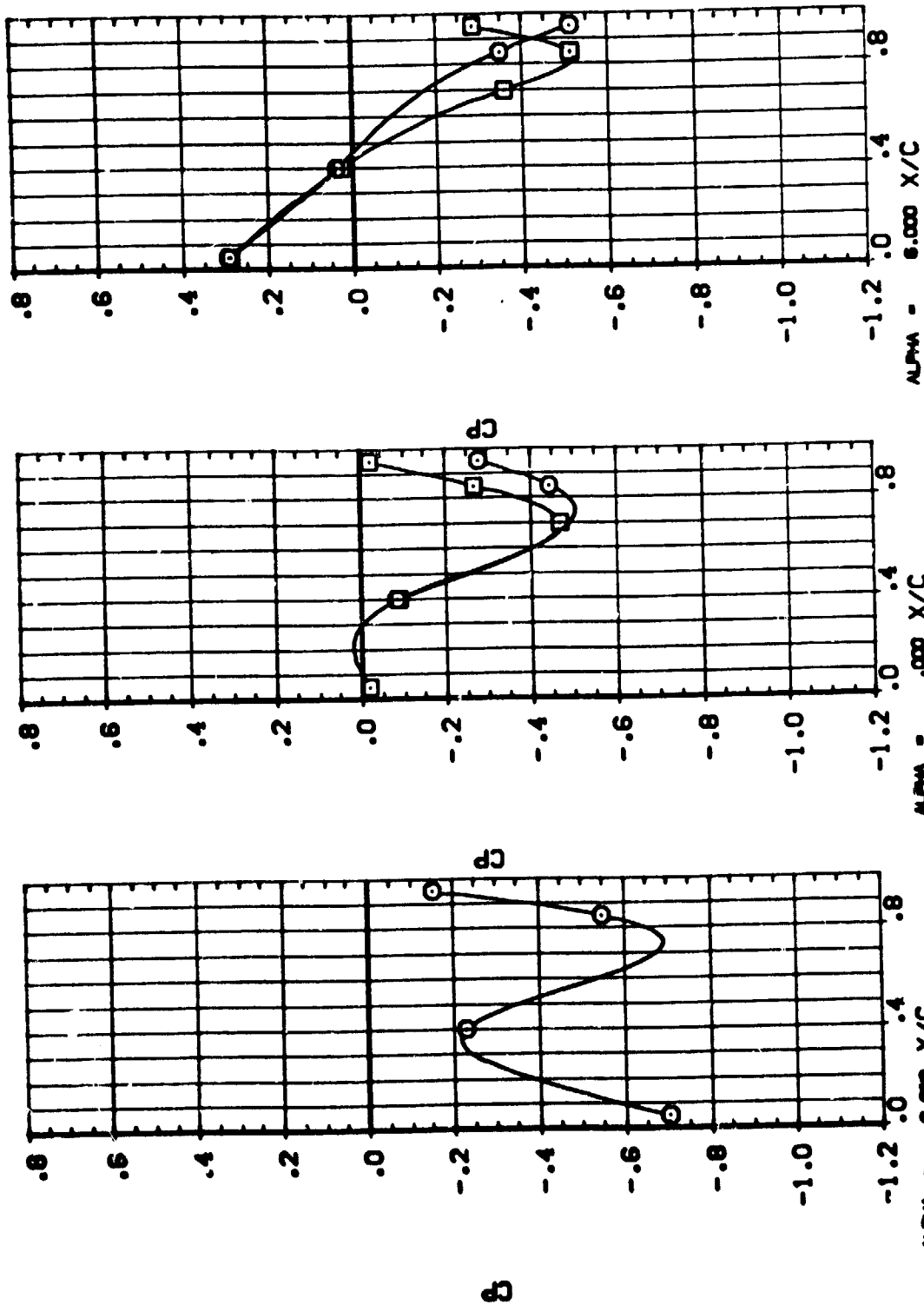
**MACH = .900    ETA = .534**

**PAGE 470**



DATA SET SYMBOL: **CONF10** DESCRIPTION: **CONF10**  
 {LUP10} CAL T14-053 [A38 01 T1 S1] LOWER WING POWER OFF  
 {LUP11} CAL T14-053 [A38 01 T1 S1] LOWER WING POWER OFF

BETA .000  
 DP1 .000  
 DP2 .000  
 DP4 .000  
 DP2 -3.500  
 DP4 -3.500



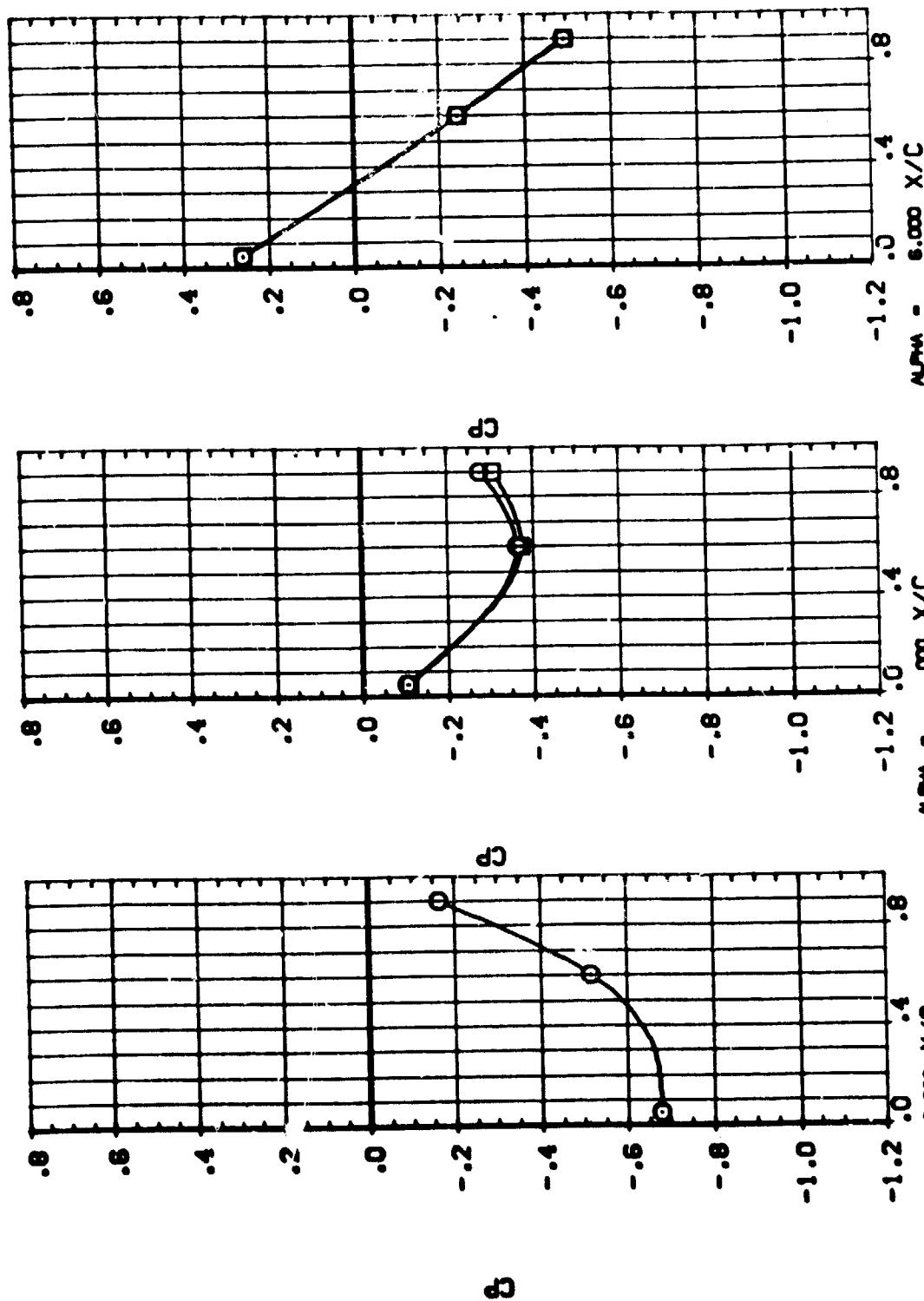
HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900  $\epsilon$  = .673

DATA SET 01000. CONFIGURATION DESCRIPTION  
 [01000] 0 01 114-000 1438 01 71 01 LOWER VING POWER 077  
 01 114-000 1438 01 71 01 LOWER VING POWER 077

BETA 0P1 0P2 0P4 0P2  
 .000 .000 .000 .000

0P2  
 -3.500  
 -3.500



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = .900 ETA = .887

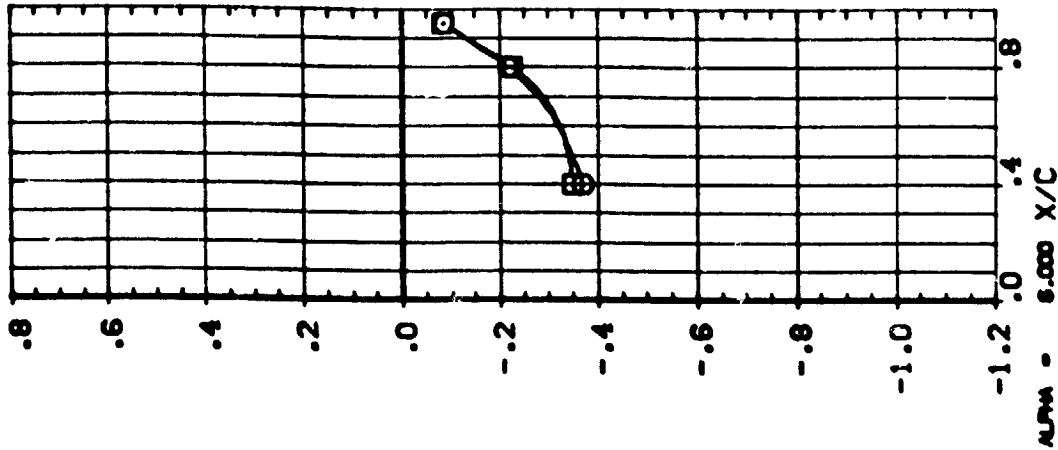
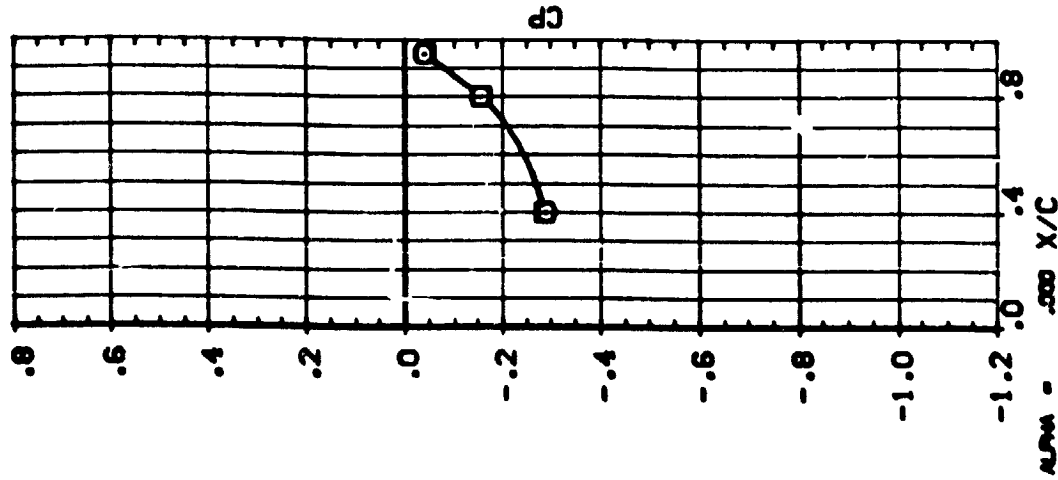
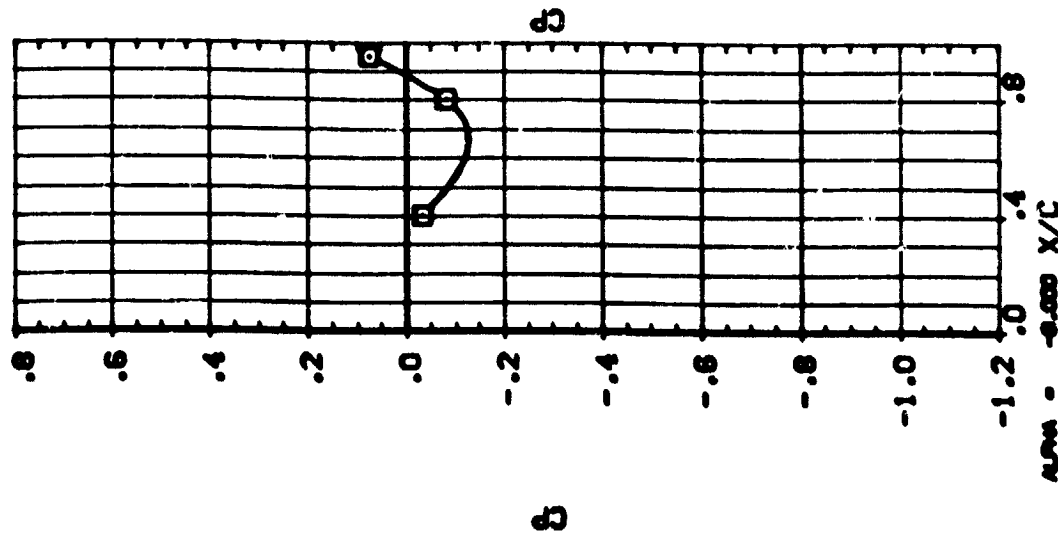




DATA SET SYMBOL CONFIGURATION DESCRIPTION

{ 11111 } B CAL T14-000 [A38 81 T1 81] UPPER WING POWER 877  
 { 11111 } B CAL T14-000 [A38 81 T1 81] LOWER WING POWER 877

BETA 8P1 8P2 8P4 8P2  
 .000 .000 .000 .000  
 .000 .000 .000 .000



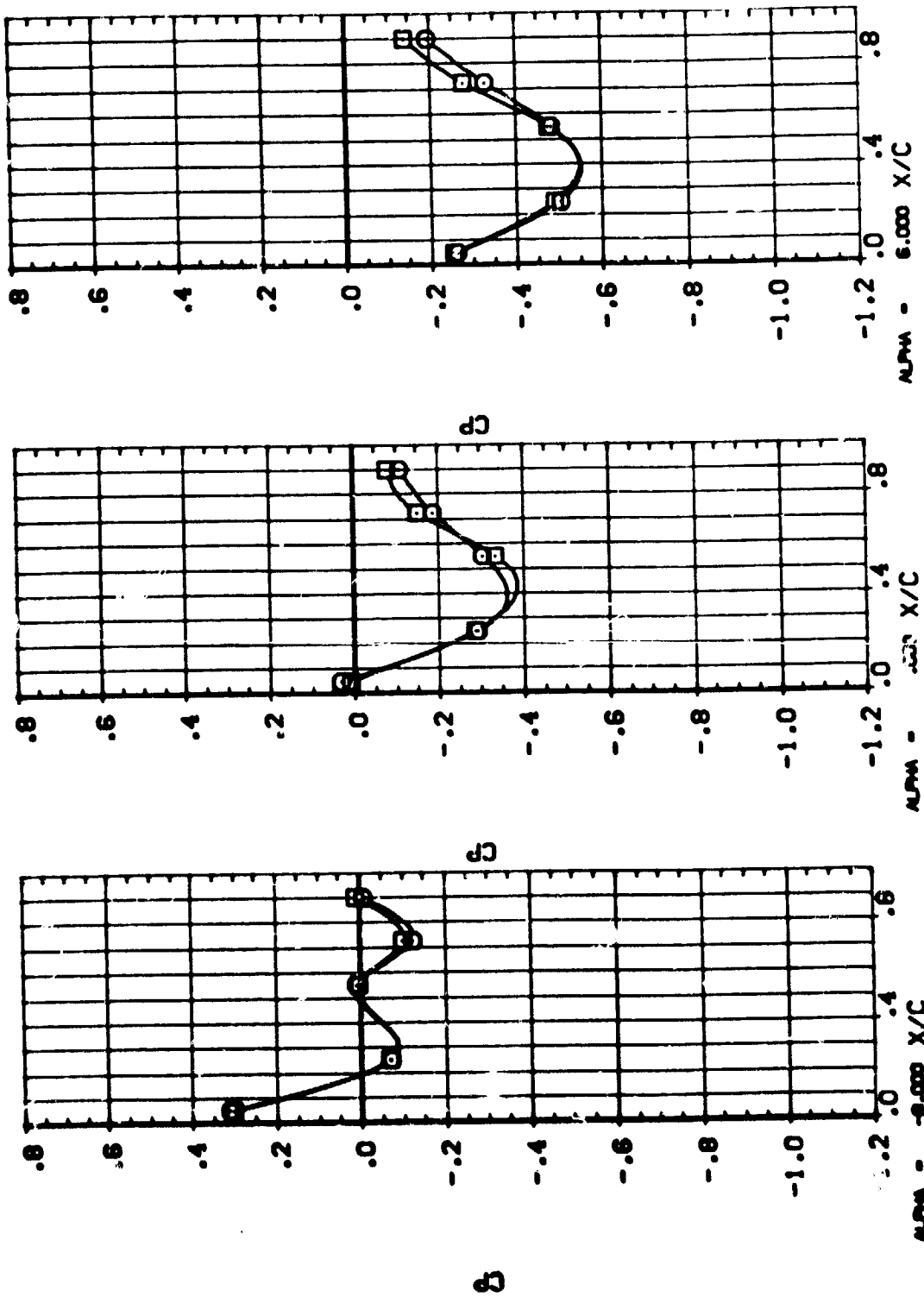
HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = 1.200 ETA = .427

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 {LUP001} B CAL T14-003 [A35 01 T1 S1] UPPER WING POWER OFF  
 {LUP002} B CAL T14-003 [A35 01 T1 S1] LOWER WING POWER OFF

BETA 0P1 0P2 0P4 0P2  
 .000 .000 .000 .000

0P2  
 -3.500  
 -3.500



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

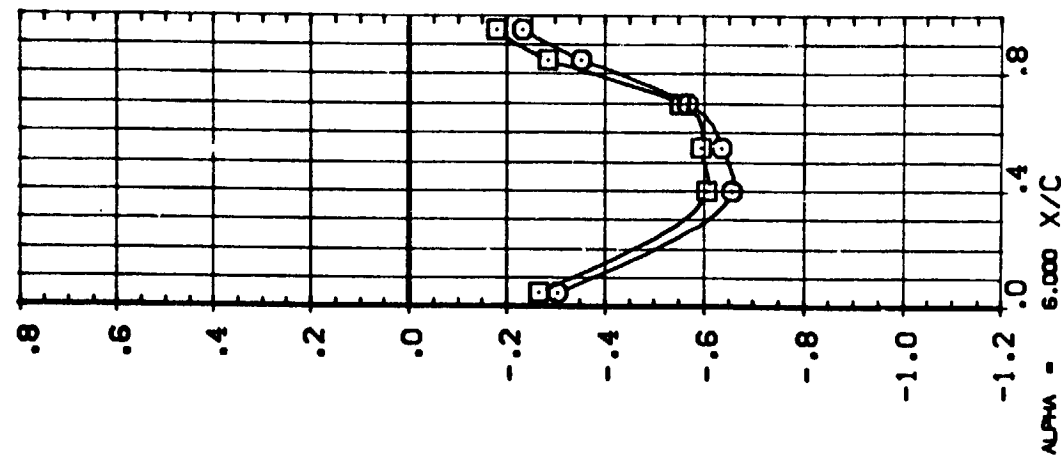
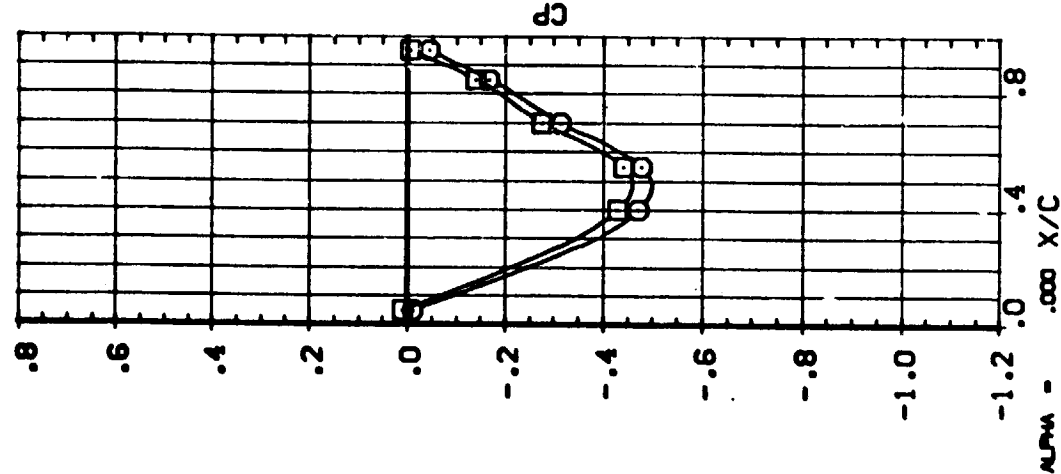
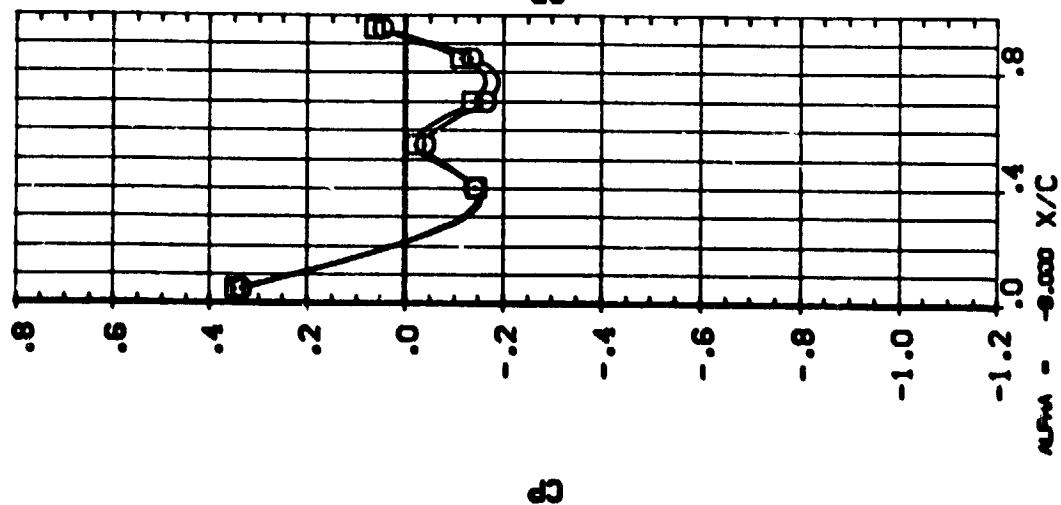
MACH = 1.200 ETA = .534



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DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 {WAF081} B CAL T14-053 (A38 01 T1 S1)  
 {WAF117} B CAL T14-053 (A38 01 T1 S1)

BETA 0P1 0P2 0P4 0P2  
 .000 .000 .000 .000  
 UPPER WING POWER OFF  
 LOWER WING POWER OFF



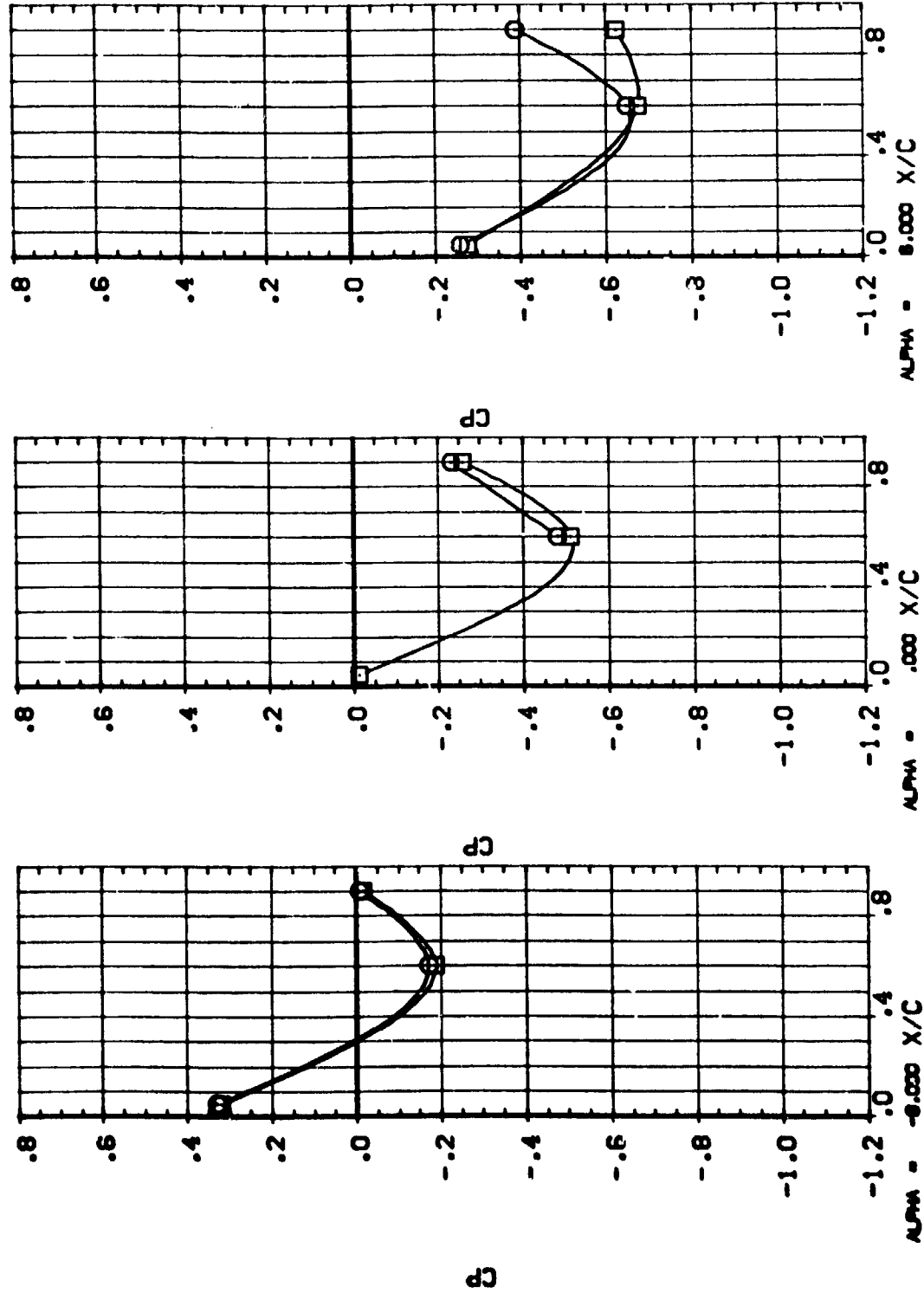
HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = 1.200  $\epsilon$  = .673

DATA SET SYMBOL CONFIGURATION DESCRIPTION

{WFO01} □ CAL T14-053 [A35 01 T1 S1] UPPER WING POWER OFF  
 {WFO117} □ CAL T14-053 [A35 01 T1 S1] UPPER WING POWER OFF

BETA 0P1 0P2 0P4 0Y2  
 .000 .000 .000 -3.500  
 .000 .000 .000 -3.500

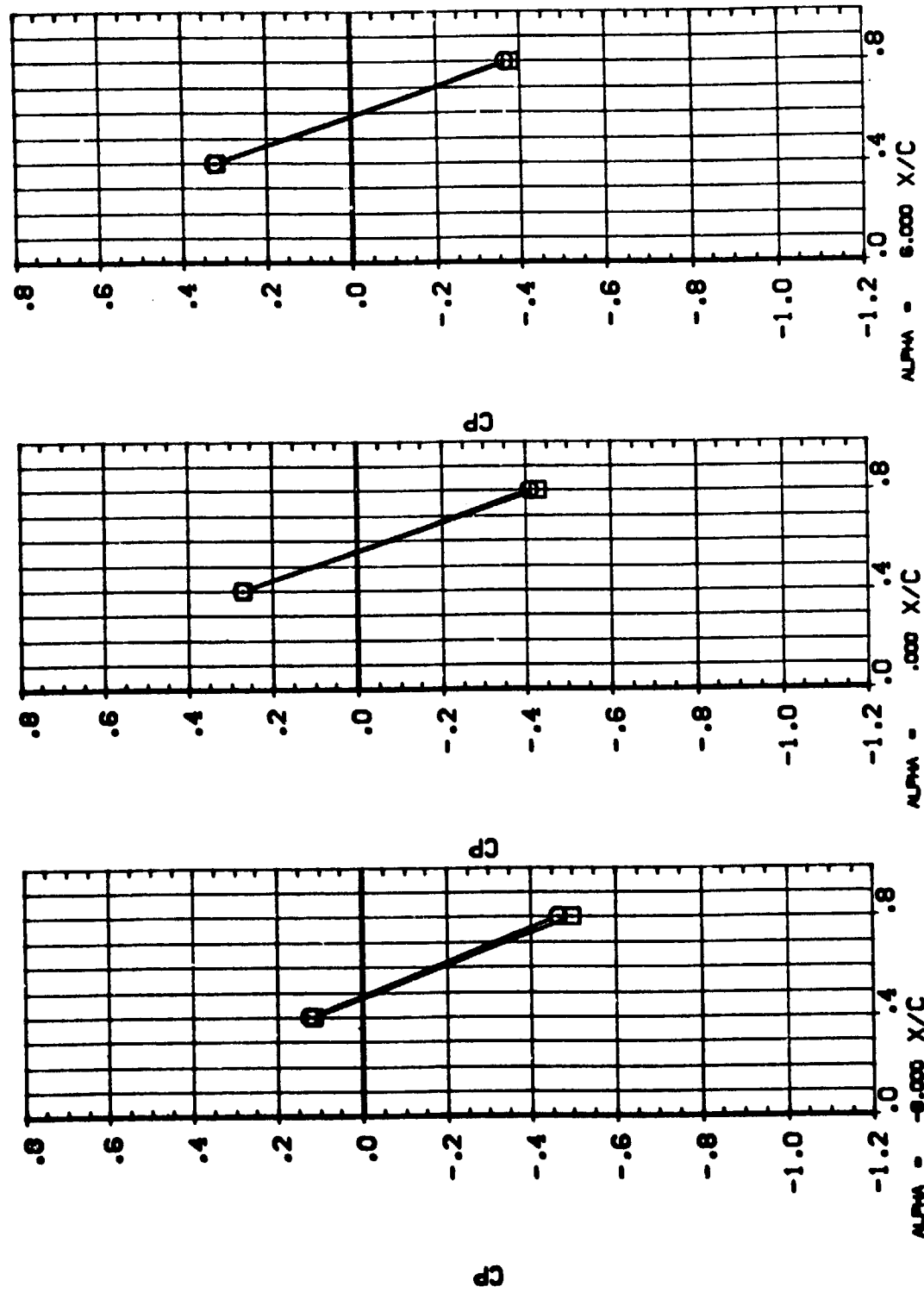


HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = 1.200 ETA = .897



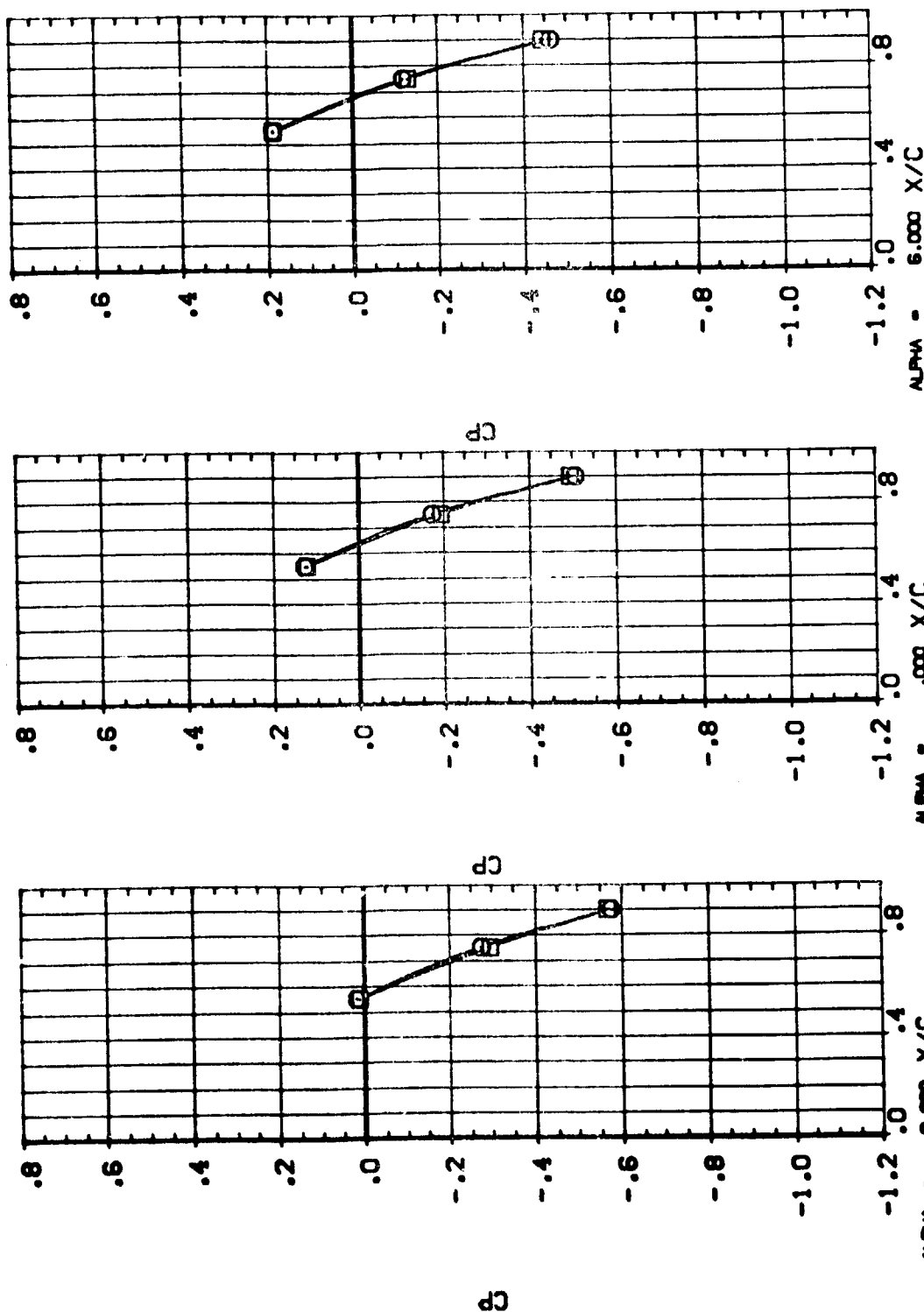
DATA SET SYMBOL: **CONF** CONFIGURATION DESCRIPTION: **LOWER WING** **POWER OFF** **POWER OFF** **BETA** **OP1** **OP2** **OP4** **OP2** **OP2**  
 {LUP081} **CA** T14-083 [A38 01 T1 S1] **LOWER WING** **POWER OFF** **POWER OFF** **BETA** **OP1** **OP2** **OP4** **OP2** **OP2**  
 {LUP117} **CA** T14-083 [A38 01 T1 S1] **LOWER WING** **POWER OFF** **POWER OFF** **BETA** **OP1** **OP2** **OP4** **OP2** **OP2**



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 [LUF081] [LUF117] CAL T14-053 [A38 01 T1 S1] LEVEL VING POWER OFF  
 [LUF117] CAL T14-053 [A38 01 T1 S1] LEVEL VING POWER OFF

BETA DP1 DP2 DP4 DY2  
 .000 .000 .000 -3.500  
 .000 .000 .000 -3.500



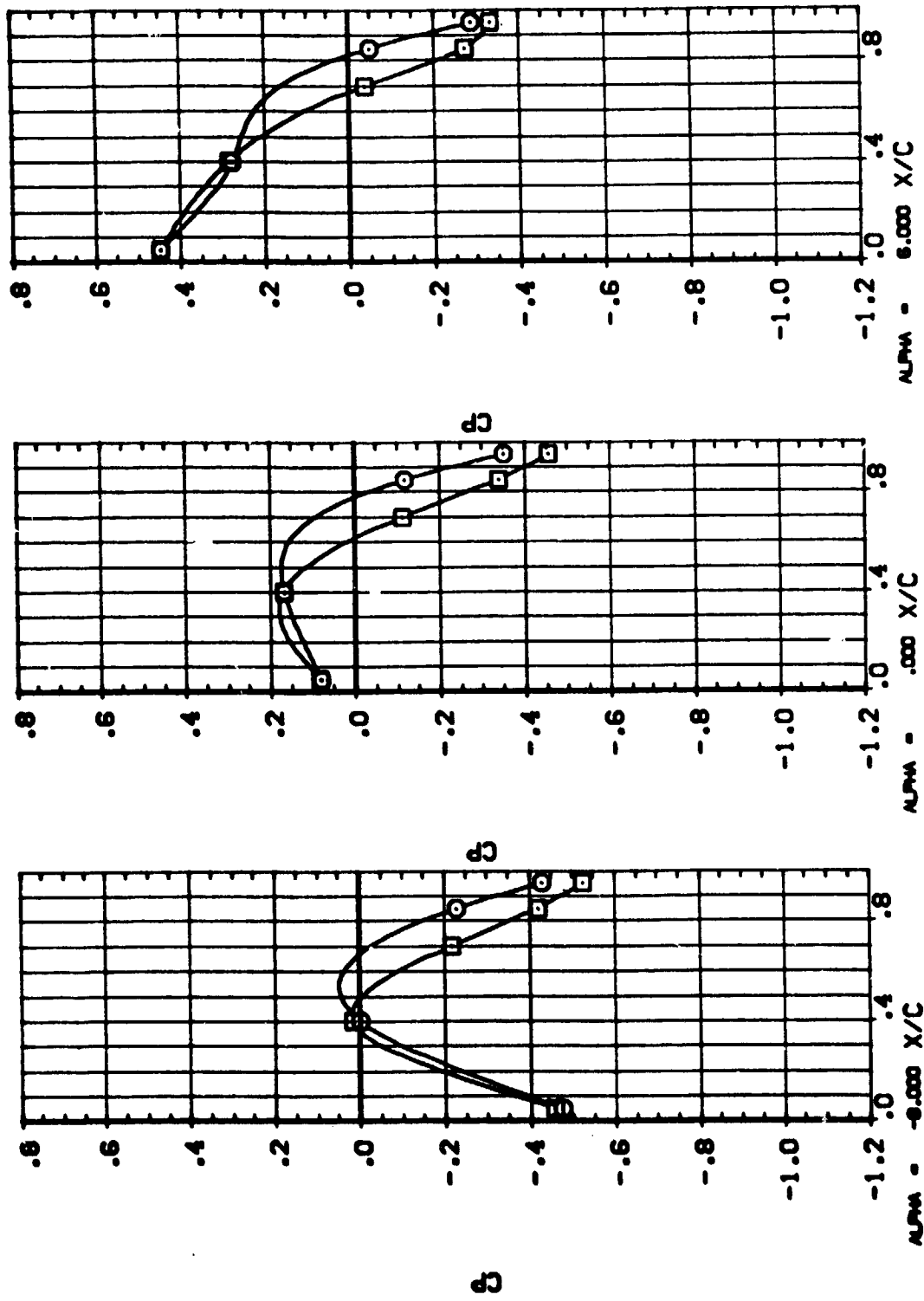
HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

MACH = 1.200 ETA = .534



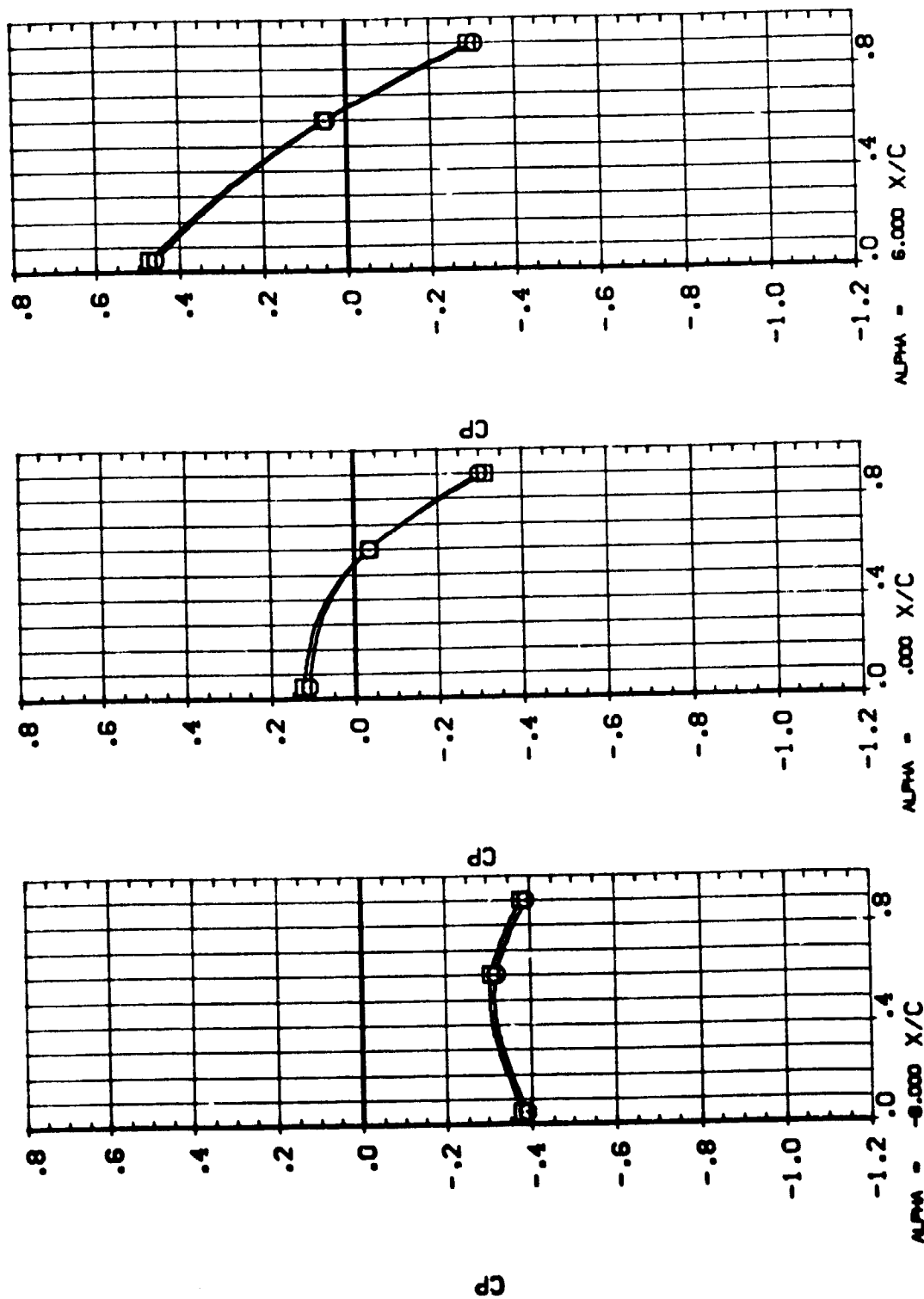
DATA SET SYMBOL: **CONFIRMATION DESCRIPTION**  
 {LUF081} **CAL T14-088** {A38 01 T1 S1} LOWER WING POWER OFF  
 {LUF117} **CAL T14-088** {A38 01 T1 S1} LOWER WING POWER OFF

BETA 0P1 0P2 0P4 0P2  
 .000 .000 .000 .000  
 -3.500 -3.500



HOSE AND STING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	BETA	DP1	DP2	DP4	DP2
(LUF081)	CAL T14-053 I-A36 01 T1 S1	POWER OFF	.000	.000	.000	-3.500
(LUF117)	CAL T14-053 I-A36 01 T1 S1	POWER OFF	.000	.000	.000	-3.500



# WING HARDWARE EFFECTS ON WING PRESSURE DISTRIBUTION

$$\text{MACH} = 1.200 \quad \text{ETA} = .887$$